ENGINEERING NEWS-RECORD

A new artery for an old giant p. 40

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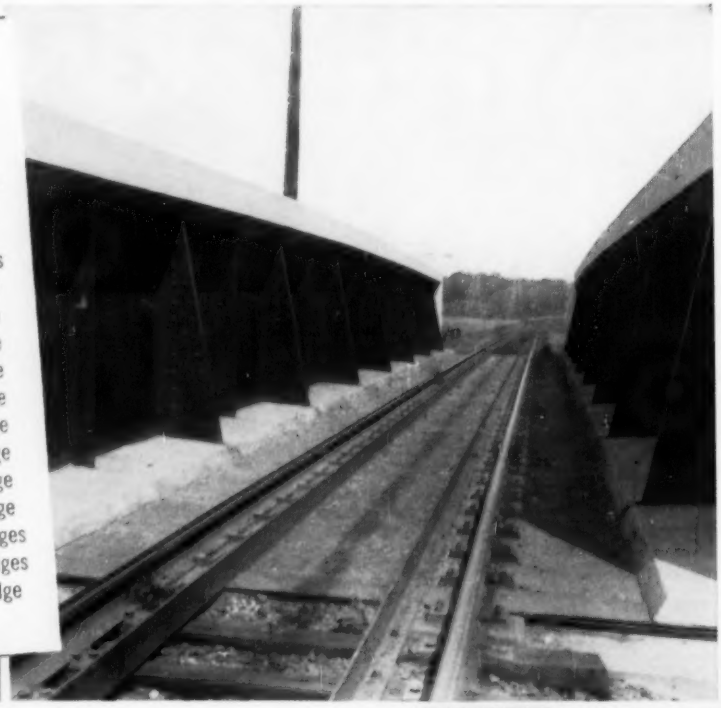
Pennsylvania Railroad Bridges
Using Wrought Iron Deck Plates

Bladensburg Road, Washington, D. C.	2 Bridges
Arbutus, Maryland	1 Bridge
Sparrows Point Spur, Baltimore, Md.	3 Bridges
North Point Road, Baltimore, Md.	1 Bridge
Middle River, Md.	1 Bridge
Queen Anne, Md.	1 Bridge
Chester, Pa.	1 Bridge
Northampton, Pa.	1 Bridge
Linden, N. J.	1 Bridge
Mulberry St., Baltimore, Md.	1 Bridge
King of Prussia, Pa.	1 Bridge
Paoli, Pa.	3 Bridges
Jersey City, N. J.	2 Bridges
Exton, Pa.	1 Bridge
Wilmington, Del.	



WROUGHT IRON Deck Plates Increase the Life-Span of these Pennsylvania Railroad Bridges

The latest count shows that 21 Pennsylvania Railroad bridges in the Eastern Region are decked with wrought iron plates. A listing of these bridges, and four typical installations are shown here.

The selection of wrought iron plate for this service is sound engineering. Plates are subject to vibration and severe corrosive attack from coal and refrigerator car drippings and run-off water. The use of ballast makes it difficult for regular inspection and maintenance. It all adds up to the need for a material that can withstand corrosive forces and fatigue stresses. And wrought iron plate has a proved record of durability under these conditions. Too, it is easily fabricated . . . a plus value in deck plate installation. Riveted or welded, the plates form a long-lasting, water-tight coat over the entire bridge floor to protect structural members.

More information on this proved wrought iron plate application is in our bulletin, *Wrought Iron for Bridge Construction*. Write for your copy.

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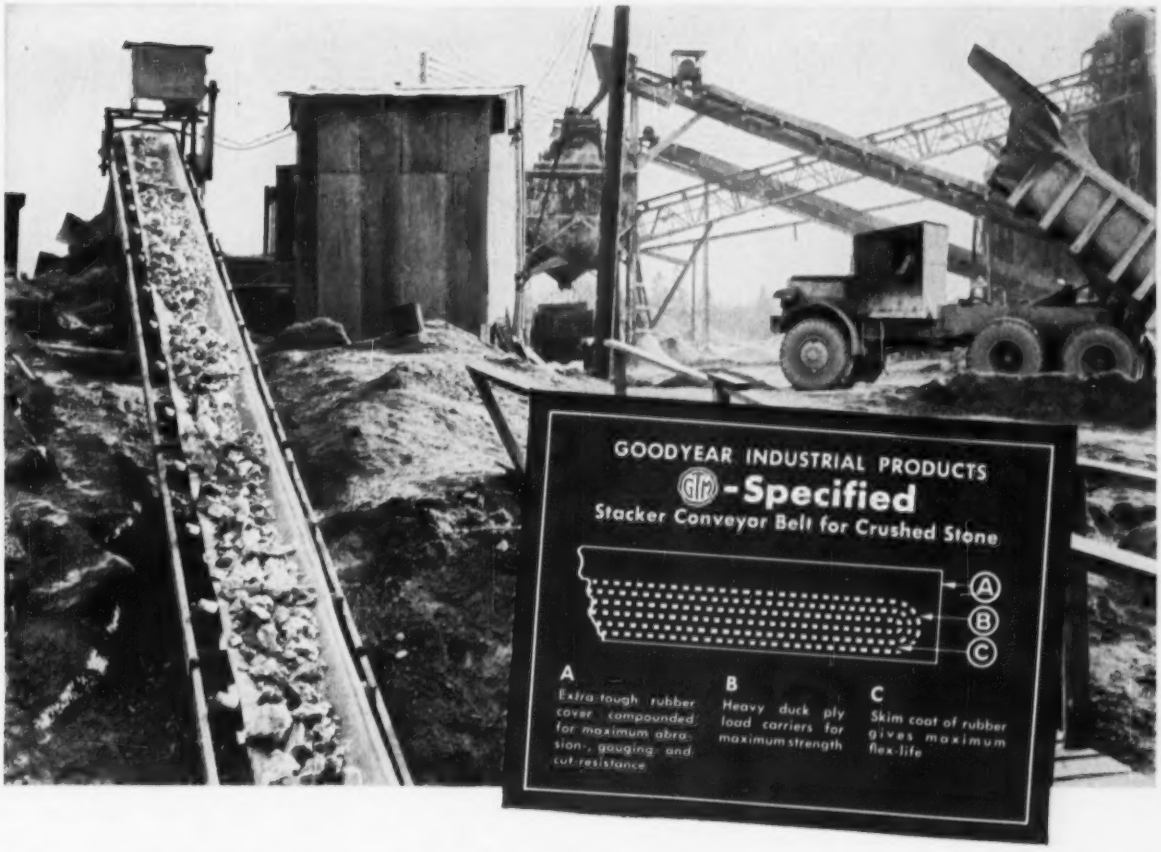

MOVING up to 225 tons of crushed stone an hour—day in, day out—battered the life out of this Midwestern firm's previous conveyor belts in just a year. Annual re-belting became an expensive proposition.

Then they called in the G.T.M. — Goodyear Technical Man. His recommendation was a Stacker-quality Goodyear belt with heavier covers and breaker strip — even though its initial cost ran a little higher than predecessors.

The pay-off? The Goodyear belt stayed on the job four times as long as previous installations. It not only paid back the slight extra cost in short order — *but slashed over-all conveyor costs by more than a third.*

Yet there's nothing unique in this report. Goodyear belts are incredibly rugged. They resist abrasion, cutting and gouging. And they are mildew-inhibited. So they're bound to give trouble-free service—throughout their extra-long life.

And remember, the G.T.M.—backed by products of this Goodyear super-quality—has your best solution to *any* problem involving conveyor belts or other industrial rubber items. Contact him through your Goodyear Distributor or by writing Goodyear, Industrial Products Division, Akron 16, Ohio.

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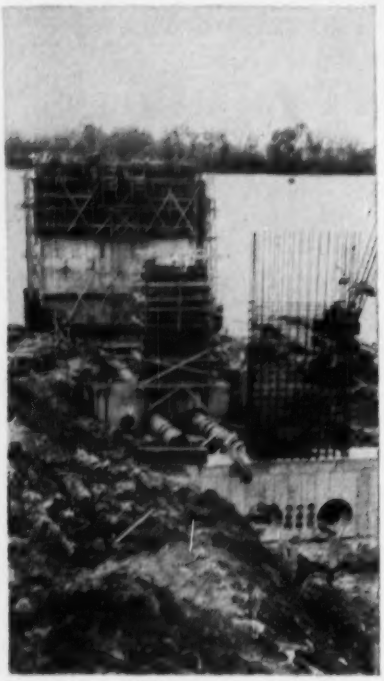
Symons FIELD REPORT...



Symons Forms used on Ohio River Intake Job...

60,000 square feet of concrete forming went into this job constructed for the city of Henderson, Kentucky. The wall started at elevation 317 (sea level elevation) or 21 feet below the river pool stage and when completed was topped at 385 or 47 feet above the water.

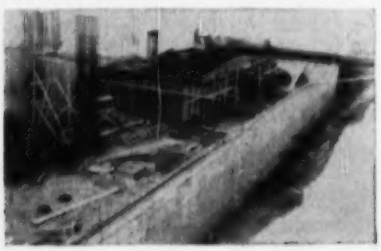
15,000 square feet of Standard Symons Wood Frame Forms were used, in sizes 2' x 4', 2' x 6" and 2' x 8'.

George Ryan, Vice President said, "Even in the eight foot lengths our Symons Forms are easily carried by one man. Another feature which we have found helpful is the ease of removing a panel at any place in a wall to clean keyways and straighten reinforcing steel. This has saved us a lot of time."

Three piers for an all access bridge to the intake structure were also formed with Symons Forms. Part of the project involved an extension of the Henderson power plant.

Symons Forms can be rented with purchase option, all rentals to apply on purchase price. Symons Clamp & Mfg. Co., 4265 Diversey Avenue, Dept. E6, Chicago 39, Illinois.

Ray Ryan Sons Company, Inc., Evansville, Indiana
General Contractor



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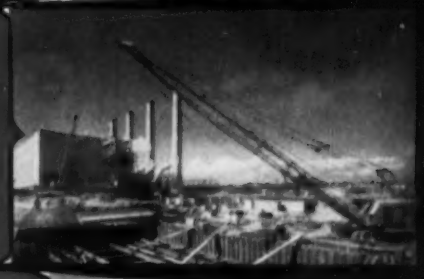

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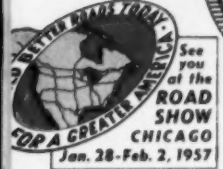

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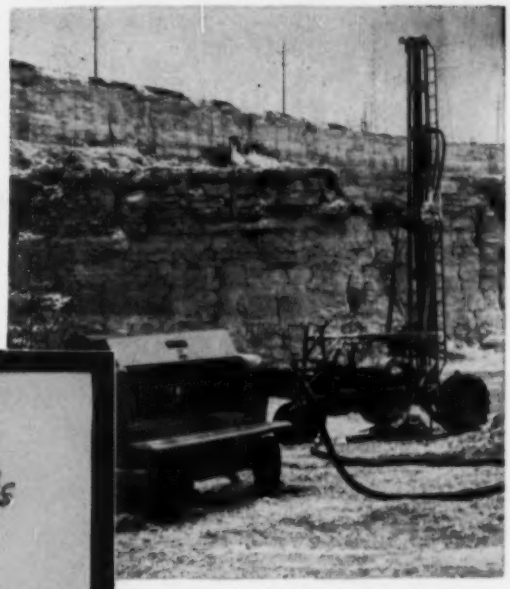

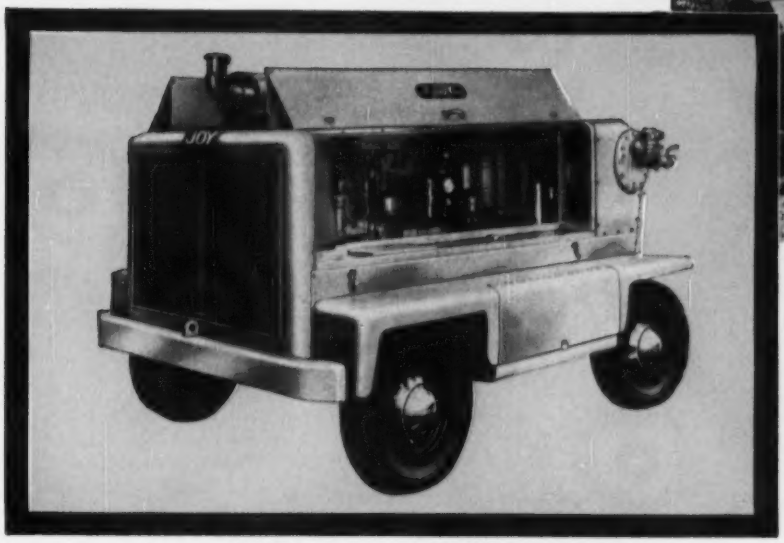

Joy RP-600 Airvane Rotary Portable Compressor furnishing air for a Joy Challenger Drill in an Illinois quarry.

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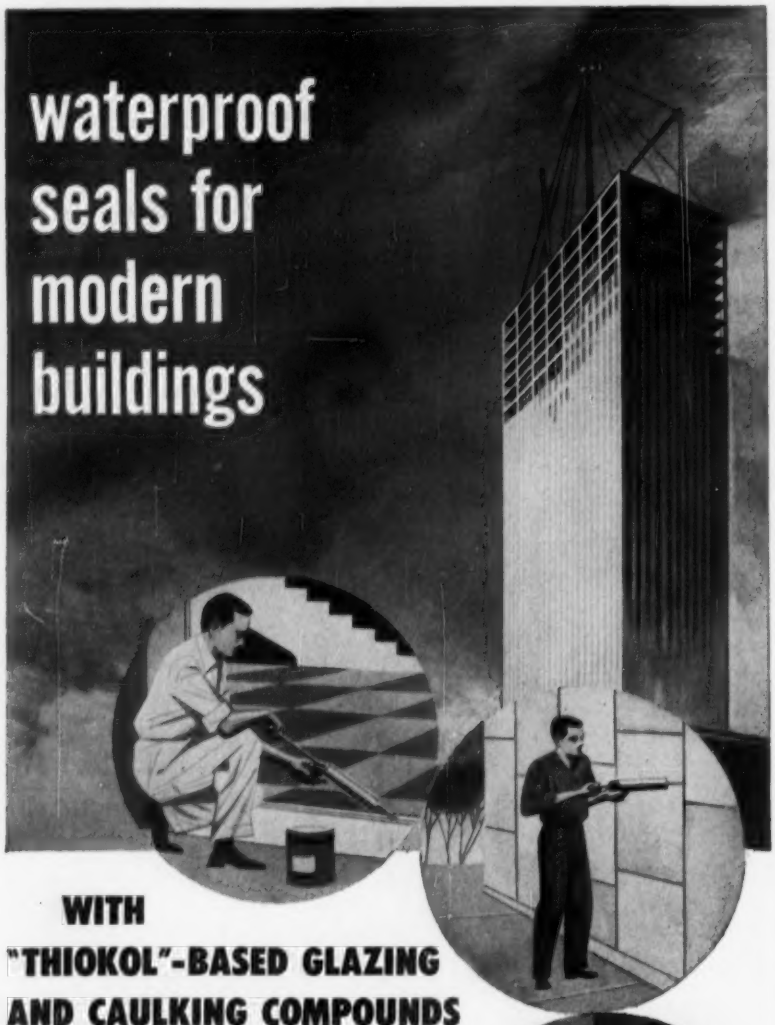

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Reader Comment

Professional Fees

SIR—Your editorial of May 3, 1956, "Fees Must Be Adequate," was splendid. The folly of paying construction dollars to save planning pennies cannot be too often emphasized. It takes time and effort to be constantly searching for ways to save money and improve quality on the job. Any conscientious architect wants to do this, but he must be paid for it.

In industry, good managers are paid high salaries and extra bonuses to cut costs. The same principle should apply to architectural fees for school planning.

Thanks again for your excellent editorial, and support of school architects. But most of all, you are helping the owner.

WILLIAM ARILD JOHNSON
Everett, Wash.

The Right to Strike

SIR—It appears that Engineering News-Record has changed its outlook—for the better—in the last two years.

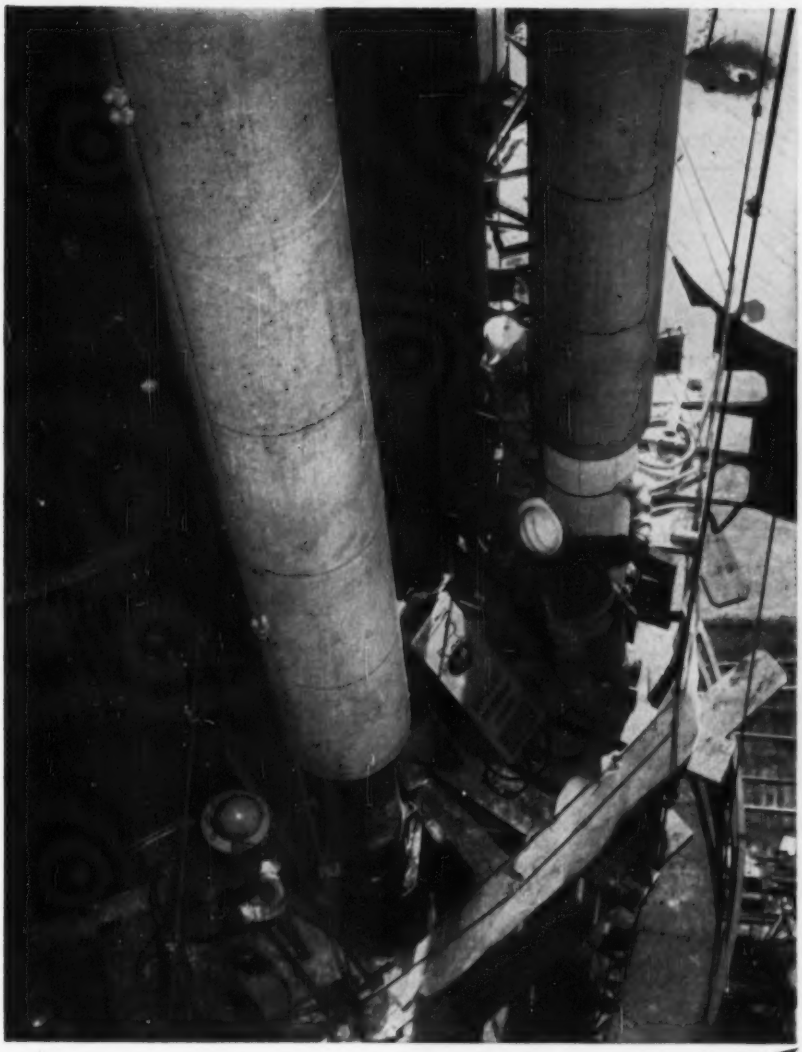
Your recent editorial (May 3, p. 128) concerning the deadlock between Delaware officials and the state's chapter of the American Institute of Architects, backs up the efforts of the architects to receive a fair fee for their services. As you describe it: "The state, like any other client, is perfectly within its rights in refusing to pay more than 5% of construction costs for the services of architects and engineers. Similarly, the architects are exercising their legitimate freedom of choice in refusing to sign contracts containing the 5% limit."

In labor relations parlance, this has all the earmarks of a lockout by the state and a strike by the architects.

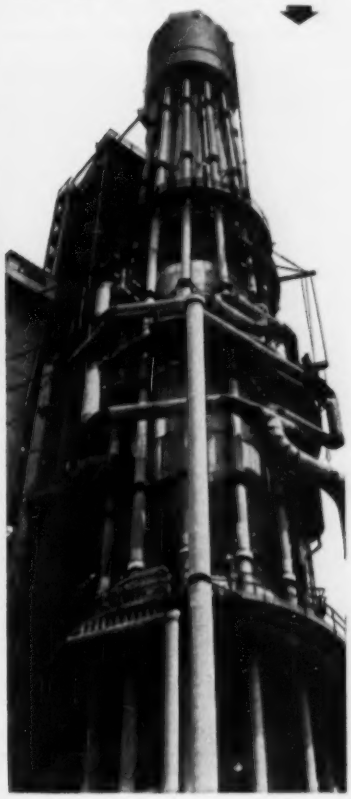
In an editorial two years ago (Mar. 25, 1954, p. 104), you berated the Engineers and Scientists of America as having lowered its professional standards and being "no different from any trade union," citing a strike by the ESA group at Sperry Gyroscope. That strike was called after a

Engineering News-Record welcomes expression of opinion from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance.

Letters should be addressed: Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.



The World's Largest Houdriflow, at the Sun Oil Company refinery, Marcus Hook, Pa., is 350 feet high. Lift piping to its reactor tank is insulated with a combination of K&M Hy-Temp and K&M "Featherweight" 85% Magnesia.



Easily Applied, Hy-Temp and "Featherweight" insulations quickly go on 14" lift pipes high above ground. This huge catalytic petroleum cracking unit embodies some 2½ miles of insulated piping. Insulation contractor: Armstrong Cork Company.

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K&M "Featherweight"® 85% Magnesia and Hy-Temp Insulations withstand moisture, vibration, frequent temperature changes. For efficiency to 1900°F., these insulations are applied in combination, with staggered joints. This eliminates heat loss that normally occurs in single-layer installations when expansion causes joints to open. "Featherweight" is efficient to 600°F. when used solely.

Plan your new plant with these heat-saving, cost-saving insulations in mind. Bring your present plant up to date with K&M Thermal Insulations. Contact your K&M distributor, an experienced applicator, for full details. Or write directly to us.

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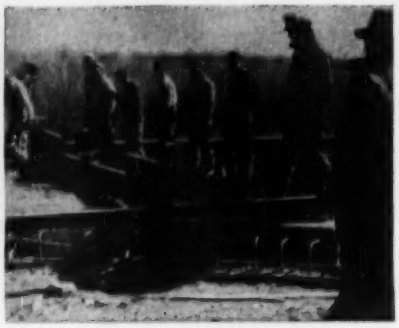
NEW SCREEDS USED ON MASSACHUSETTS TURNPIKE

Bayer & Mingolla Construction Company

Screeding Bridge Deck—Stow special 24'6" Vibrating Screed finishing outer lane. "I" beam rail at far end is mounted above the parapet reinforcing.



Rolling Back—The rear end-roller automatically flips up to support the screed off the concrete when the operator lifts the handle, making it simple to roll back for a second pass.

Contractors building the new Massachusetts Turnpike use three special Stow Vibrating Screeds to finish bridge decks on this project.

These Stow Screeds are especially recommended for concrete bridge decks, roadways, etc., to strike-off, smooth, and shape the surface as they are pulled along.

On this project, three screeds of different beam length are used; one for the inside lane, one for the outside lane, and one for the interchange. The Stow Screed's underslung construction allows the end rollers to ride on "I" beam rails mounted above the surface being screeded.

The vibrating unit is powered by a 2½ HP engine and mounted in the center of the beam. Engines and end assemblies are bolted to the beam, but may be easily mounted on different beams when jobs change. Contractors can build their own beams or order standard or special beams from Stow.

For more information on Stow's complete line of Screeds or Screed Package assemblies, write today:

STOW MANUFACTURING CO.

19 Shear St. Binghamton, New York

. . . Reader Comment

90% majority in a secret ballot authorized the strike. A strike is the only legal and ethical way that employed engineers can temporarily withdraw their services. Or as you put it now, they were "exercising their legitimate freedom of choice in refusing to sign [a collective] contract containing the [company's offer]." (The insertions are the writer's.)

The self-employed architect "strikes" by refusing to work for a 5% fee. So, under similar extreme circumstances, the employed engineer and scientist finds he must refuse to work on the employer's terms.

Apparently, Engineering News-Record now realistically recognizes that there is nothing unprofessional about a work stoppage. The right to strike is part of our democratic way of life.

JOHN E. TAFT
Engineers and Scientists of America
Washington, D. C.

[EDITOR'S NOTE—For many years the editors of Engineering News-Record have recognized the right of employed engineers to bargain collectively. The right to strike when no other course is open is inherent in the right to bargain collectively. Our editorial of March 25, 1954 did not criticize the engineering employees at the Sperry Gyroscope plant for striking. It criticized them for the way in which the strike was conducted. It said, in part, "We do not know the merits of that labor controversy, but regardless of causes or justification, it had all the earmarks of a trade-union fight. At the start there even were picket lines to keep other unionized men, having no dispute with management, from their jobs."

We still believe that this was a correct appraisal of the situation. Whether ESA offers a higher type of collective bargaining than is offered by ordinary trade unions has still to be proven, although it may be noted with approval that the ESA voted recently not to affiliate with the merged AFL-CIO organization.]

Forces During Decentering

SIR—In what has been said about the failures in the rigid frames of Air Force warehouses, I miss consideration of forces acting during decentering. Unless—but quite unlikely—the shoring was lowered evenly in a complete span (as for arches), momentary intermediate supports are bound to occur. Corresponding momentary negative moments will amount to about 10% of the full working moments—in this case of high ratio of dead to live load

Lake View Sand and Gravel Company
Fond du Lac, Wisconsin

Trucks Run 100,000 Miles Before Overhaul with Cities Service C-300 Motor Oil!

CHART SHOWS LAKE VIEW'S 13-YEAR SAFETY RECORD

"Cities Service helped keep machinery in safest operating condition," says Manager Eugene Clement.

	SAFETY			
Year	Construction 1st Place	Group Awards 2nd Place	Building Supply 1st Place	Group Awards 2nd Place
1943			X	
1944	X		X	
1945	X		X	
1946	X		X	
1947	X			
1948		X		X
1949	X			X
1950	X		X	
1951				X
1952			X	
1953				X
1954				X
1955		X	X	

NOTE: Lake View also received a "No Accident Award" for years, 1945, '47.

Lake View Sand and Gravel also chalks up phenomenal 13-year safety record.

At Lake View Sand and Gravel Company, dump trucks run almost as much while standing as while moving.

"So you can see," says Manager Eugene Clement, "that the 100,000 mile overhaul period we're getting with Cities Service C-300 Motor Oil is really something!

"It's actually twice our former mileage with another brand of motor oil! And it certainly hasn't affected our safety record. For 13 years we've won Wisconsin safety awards—and we couldn't possibly have done it without top-notch maintenance and top-notch lubricants.

"Trojan H-2 Multi-Purpose Grease is an example of good, simplified lubrication. We use it for wheel bearings, water pumps and general chassis lubrication and find it not only offers greater water resistance, but also pumps easier in low temperatures. It's advantages like this that make me mighty glad I switched to Cities Service."

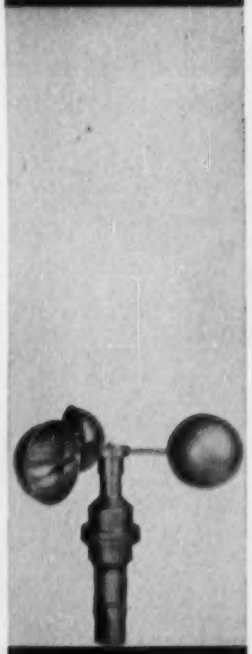
This is another report of a firm's outstanding results with Cities Service products. Find out what these products can do for you. Talk with your Cities Service representative or write: Cities Service Oil Co., Sixty Wall Tower, New York 5, N. Y.

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

GURLEY

INSTRUMENTS FOR POLLUTION CONTROL

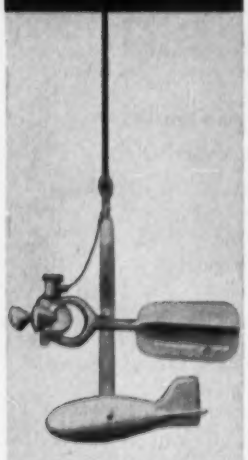


Now—Record Wind Velocity in Any of Three Units

The Gurley Universal Anemometer reads wind velocity—important factor in controlling air contamination—in kilometers per hour; miles per hour; or knots. The three units can be used interchangeably. A simple switch over a calibrator changes the instrument's method of recording from one speed unit to another. The indicator pointer instantly adjusts to the correct reading for the unit selected. The Gurley DC Anemometer is wind-powered...requires no outside power to indicate and record velocity. Accurate within 2% at velocities from about 2 to 100 miles per hour, it is frequently used to control other equipment.

Gurley Anemometers are in wide use at municipal and industrial pollution control laboratories, airports, weather stations, oil refineries, in homes and at shore installations. Other Gurley Wind Instruments for pollution control stations include: Wind Direction Instruments, Wind Velocity and Direction Recorders and Pilot Balloon Theodolites. *Write for Bulletin 6000.*

GURLEY



Current Meters, Water Level Recorders Reveal Water Conditions

The study of flow and level of water are two basic steps in controlling pollution of streams and other waters. The basic flow measuring instrument is the Gurley Current Meter, in use in federal, state and municipal bureaus for 70 years. Gurley Current Meters are available in a variety of outfits for use by overhead-cable suspension...wading-rod suspension...exploration and survey parties. Gurley's "Price Pattern" instruments can be supplied in either fresh or salt water models. There is also the "Pygmy" for shallow streams, flumes and canals.

Gurley Water Level Recorders make continuous graphic records for an entire day or week. Float-operated, simple in construction and operation, they are widely used in reservoirs, sewers, sewage disposal and hydro-electric plants, and supplement irrigation and stream gaging measurements. For details on these and many other Gurley Hydraulic Engineering Instruments, write for *Bulletin 700.*

Other Gurley Instruments to aid you in pollution studies include: Densometers for measuring porosity, air-permeability and air resistance of samples; Permeometers for measuring air flow through samples. *Write for further information.*

GURLEY

W. & L. E. GURLEY, UNION PLAZA, Troy, New York
Instrument Makers Since 1845

. . . Reader Comment

(4:1), resulting in tensile stresses of about 0.06 f'_c. Add to this a small amount of stress due to volumetric changes, and ultimate tensile strength (0.10 f'_c) is reached in unreinforced top areas, with initial haircracking.

As soon as all shores are out, the frames assume their final bending stresses—(1) compression at top in the center of the span, which forcibly closes any cracks, and (2) small bending stresses near the points of inflection. The last is the critical zone, where no reinforcing, and little counteracting compression, exist at the top.

Momentary, possibly invisible, haircracks have weakened this zone, and now destroying forces—increasing stresses due to volumetric changes and diagonal tension—act in it. This explains the location of failures and the time element involved.

It is easily seen that decentering does not cause any critical condition in ordinary construction with homogeneous top slabs—simply because such top slabs reduce appreciably the size of momentary tensile stresses and there is always temperature reinforcing, even if the beam has no top reinforcing.

Blaming the ACI code for this failure is surely carrying things too far. After all, no code can cope with every conceivable type of construction, and this is a special case with special decentering conditions.

HENRY H. WERNER
Consulting Engineer
Long Island City, N. Y.

CALENDAR

Concrete Reinforcing Steel Institute, annual meeting, The Greenbrier, White Sulphur Springs, W. Va., May 28-June 2.

Wire Reinforcement Institute, annual spring meeting, The Greenbrier, White Sulphur Springs, W. Va., May 28-30.

Steel Joist Institute, annual meeting, The Greenbrier, White Sulphur Springs, W. Va., May 29-30.

American Society of Civil Engineers, spring convention, University of Tennessee, Knoxville, Tenn., June 4-8.

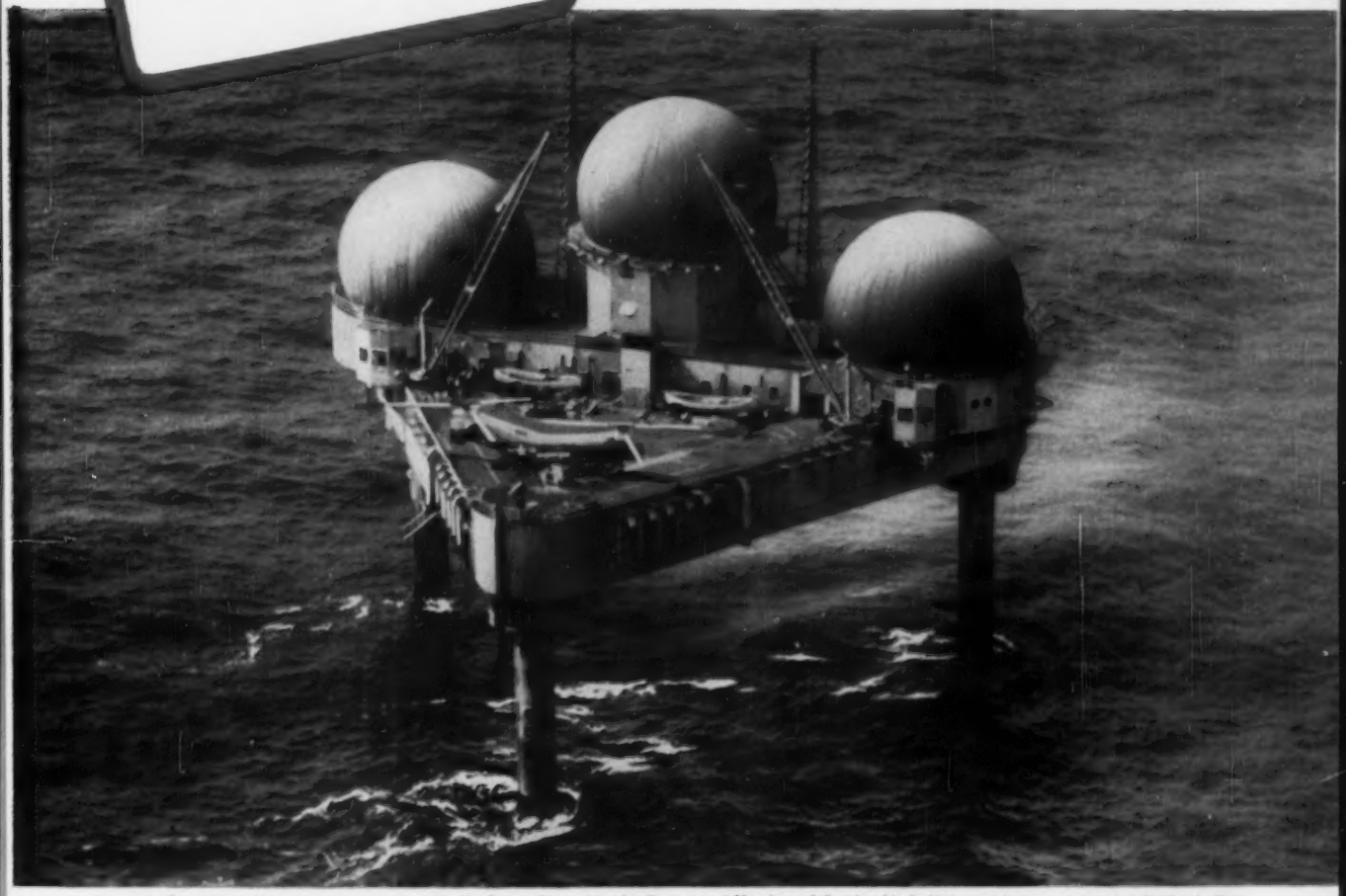
Materials Handling Exposition, Cleveland, Ohio, June 5-8.

World Conference on Earthquake Engineering, University of California, Berkeley, June 12-16.

American Society for Testing Materials, annual meeting, Chalfonte-Haddon Hall Hotel, Atlantic City, N. J., June 17-22.

American Society of Landscape Architects, 57th annual meeting, Cleveland Hotel, Cleveland, Ohio, June 24-27.

completed ...another RAYMOND first!



Constructed as a joint venture with De Long Corp. for the Bureau of Yards and Docks, U. S. Navy, acting as agents for U. S. A. F.

The Georges Bank Advance Radar Warning Station

The above photograph shows one of the outstanding construction achievements of 1955.

This "Texas Tower", 110 miles off the coast of Cape Cod in 56' of ocean, is the first structure ever to be constructed under such conditions. It has already withstood the lashings of two hurricanes and a raging Nor'easter . . . a tribute to the half-century of Raymond experience in every type of foundation construction.

For a showing of the motion picture depicting the installation of this "Texas Tower" to engineering and construction groups, contact your nearest Raymond District Office.

RAYMOND'S DOMESTIC ACTIVITIES . . . Foundations . . . Marine Structures and Offshore Construction . . . Heavy Construction . . . Soil Investigations.

RAYMOND'S ACTIVITIES ABROAD . . . Complete service for all types of construction.

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CONCRETE PILE CO.
140 Cedar Street, New York 6, N. Y.

BRANCH OFFICES
in principal cities of the United States, Canada, Central and South America.

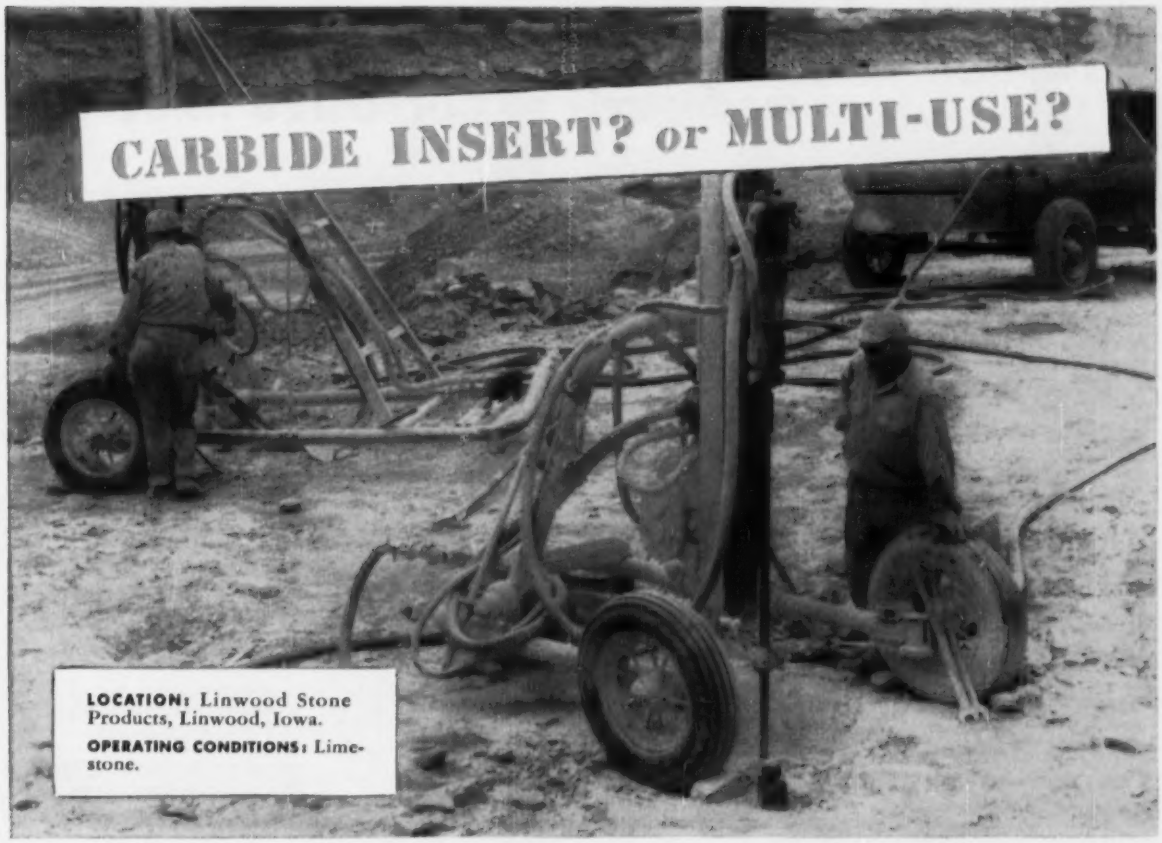
NEW BRIDGE NEAR ROSEBURG, OREGON, carries U. S. Route 99 over the South Umpqua River, using a 275-ft deck-truss span. In order to reduce the weight of the span, wide-flange beams of Mayari R steel were used for stringers and floor beams, as this steel is 50 pct stronger than carbon steel and can provide the same strength in lighter sections. In this way deadload stresses were substantially reduced, and transportation charges lowered, as well. The bridge was fabricated by Poole, McGonigle and Dick, of Portland, and erected by Steel Construction Company of Oregon. Peter Kiewit Sons, Company, Omaha, Neb., was the general contractor.

With a yield point of 50,000 psi and from 5 to 6 times the atmospheric-corrosion resistance of carbon steel, Mayari R high-strength, low-alloy steel is widely used to reduce weight in certain applications, and to add strength in others. Catalog 353 abundantly documents Mayari R advantages; a copy is yours for the asking.

Bethlehem Steel Company, Bethlehem, Pa. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

Mayari R...High-Strength, Corrosion-Resisting Steel



Switch to wagon drills and TIMKEN® carbide insert bits cuts drilling and powder costs 1/3

. . . Reports Linwood Stone Products Co.

WHEN Linwood Stone Products Company switched from well drills to wagon drills, they also switched to Timken® DC and KC carbide insert bits. And they got extra depth before resharpening, fewer shattered inserts, and less binding in the small-diameter blast holes. The payoff: *drilling and powder costs were cut one-third.*

For small diameter blast holes, constant-gauge holes, and extremely deep holes—particularly in hard, abrasive ground—Timken carbide insert bits are your best investment.

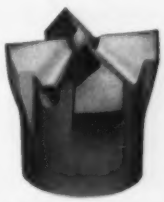
But carbide insert bits may not be best for all your drilling jobs.

In ordinary ground, for instance, Timken multi-use rock bits are most economical. With correct and controlled reconditioning, they give you the lowest cost per foot of hole when full increments of steel can be drilled.

You can count on Timken rock bits to last longer because the special Timken shoulder union protects the threads from drilling impact. And both Timken carbide insert and multi-use rock bits are made from electric-furnace Timken fine alloy steel. No other rock bit manufacturer makes his own steel to give you extra quality control.

With Timken rock bits, you'll save time when you have to change from one bit type to another, because Timken carbide insert and multi-use rock bits are interchangeable in the same thread series. As the ground changes, you can change bits quickly and easily—right on the job.

For all your drilling jobs, profit from the more than twenty years of drilling experience you get when you call or write: Timken Rock Bit Engineering Service, The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".



Timken threaded multi-use rock bit

Timken threaded carbide insert rock bit

your best bet for the best bit . . . for every job

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

for lower cost control of moderately **Corrosive** fluids

Fig. 2651-A Gate

JENKINS

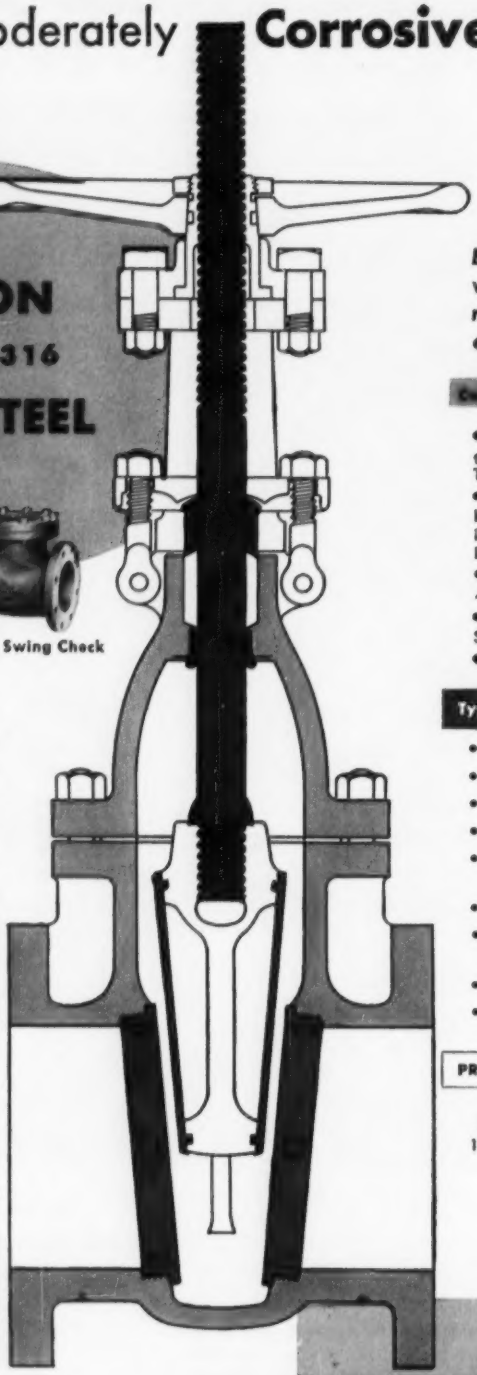
NICKEL IRON

Valves with Type 316

STAINLESS STEEL

Trim

Fig. 2624 Swing Check



Every part in contact with fluid is the right metal to block corrosion and beat wear.

Cast NICKEL IRON

- **BODIES** Heavy duty, dimensioned for greater resistance to wear and abuse. Through port design in Gate Valves.
- **BONNET** Rugged construction, like body. Swing-type gland bolts. Screwed-in back-seating bushing. Deep stuffing box.
- **YOKE** Integral with bonnet in 2" to 4" sizes.
- **WEDGE** In 10" to 24" sizes, with Stainless Steel Wedge Rings.
- **COVER** In Check Valve.

Type 316 STAINLESS STEEL

- SPINDLE
- GLAND
- BONNET BUSHING
- SPINDLE RING
- WEDGE of I-beam structure in 2" to 8" sizes.
- WEDGE PIN
- WEDGE RINGS Rolled into Nickel Iron Wedge in 10" to 24" sizes.
- SEAT RINGS
- DISC and HANGER in Check Valve

PRESSURE RATINGS

2" to 12"—200 lbs. O.W.G.
14" to 24"—150 lbs. O.W.G.

This combination provides corrosion resistance well above the moderate need in many processing services with an investment well below that for all-stainless steel valves.

Designed primarily for the chemical process industries, they are recommended for control of mildly corrosive liquids with minimum quantities of mineral acids, such as creosote in wood treatment, and many liquids carried in petroleum processing.

A major use is in pulp and paper processing, particularly in lines serving the digester, and in the chemical recovery cycle. Service records in lines carrying the valve-punishing "black liquor" give Jenkins Nickel Iron Valves top performance rating.

Jenkins *extra value* construction throughout. Get details — compare. See why they stretch your valve investment dollar — with longer service life, lower maintenance cost.

ALSO RECOMMENDED for fluids used in electroplating, photograph finishing, bleaching, dyeing, and heat treating of metals.

GET COMPLETE SPECIFICATIONS from your Jenkins Valve Distributor, or write: Jenkins Bros., 100 Park Ave., New York 17. Ask for Bulletin 118.

JENKINS

LOOK FOR THE DIAMOND MARK

VALVES

SINCE 1864 JENKINS MARK

Jenkins Bros.

ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

WAGE-HOUR RULES FOR CONSULTANTS—The National Society of Professional Engineers (page 26) looks to a coming court action to bring about a final clarification of whether or not consulting engineers are in interstate commerce. An earlier court decision said they are not, but the 8th Circuit Court of Appeals ruling in Iowa last year (ENR Oct. 6, '55, p. 106) said they are definitely subject to the Fair Labor Standards (wage-hour) Act. NSPE, having no success in getting the U. S. Supreme Court to review this decision, now stakes its hopes on a new suit against one of its members in Virginia. If the court there rules counter to the Iowa decision, the Supreme Court is more apt to agree to make ruling for a final settlement of the question.

NEW CONCEPTS IN PRESTRESSED CONCRETE—The second annual meeting of the Prestressed Concrete Institute (page 81) revealed that designers have altered their thinking in several significant respects over the past year. For example, it was noted that less emphasis is being placed on allowable unit working stresses and more on ultimate strength and the possibility of cracking of prestressed beams. Also, more consideration is being given to allowing some tension in certain members, such as roof slabs, and to partial prestressing (use of ordinary reinforcing in prestressed beams to resist tension).

BOOM BACK ON THE TRACK—After a two-week slump, heavy construction contract awards have made a spectacular comeback. This week's $562 million represents the third biggest weekly volume so far this year. Private work is the mainspring of the week's upsurge, posting its best total in 10 weeks. For commercial building it's the second biggest week.

DELAWARE ARCHITECTS FIGHT ON—Still boycotting school construction jobs because of a 5% fee limitation imposed by the state legislature, Delaware architects continued to advance arguments in their defense. The Delaware chapter of AIA cited fees paid in nearby states as ranging from 6% to 9½%. And, the Delaware section of ASCE came up with a supporting statement to the effect that out-of-state architects might be tempted to grab off some Delaware business on a sort of hit-and-run basis, since they could escape the onus of inadequate or hurried work.

A TIMELY REPORT—Milwaukee's critical cement shortage will get some measure of relief with the arrival this week of a boat load of cement from West Germany. The shipment of 8,800 bbls. is the largest single shipment of foreign cement to come into Milwaukee and the first to be received from West Germany. It is for Kolinski Concrete Co. for use in its ready-mix plant.

ONE OF A SERIES . . .

What makes a cylindrical roller bearing good?

WELL-MADE, VERSATILE OUTER RACES

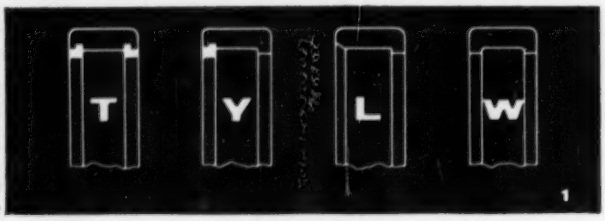
Outer races are vital parts of all roller bearings; except where housings can provide hardened and ground operating surfaces. In housings of aluminum, cast iron or un-heat-treated steel, outer races assure a dependable roller pathway.

While the outer race is not normally the critical member of the bearing, it can still suffer fatigue failure, like all objects subjected to stress repetitions. Therefore HYATT outer races are manufactured with the same scrupulous care that we apply to inner races and all other components of HYATT Bearings. We supply a wide variety of outer races, which makes HYATTS versatile enough to fit practically any design requirements. Some of these application and operating advantages are briefly covered at the right.

You'll find more details in HYATT General Catalog No. 150, or your nearby HYATT Sales Engineer will gladly help you choose the type best suited to your needs. Remember, HYATT is America's *first* and *foremost* maker of roller bearings. Hyatt Bearings Division of General Motors, Harrison, New Jersey.

GM GENERAL MOTORS

HYATT ROLLER BEARINGS

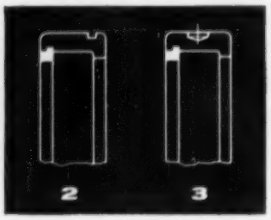


1. OUTER RACE TYPES

HYATT Hy-Load outer races are available in a variety of standard configurations (Figure 1). W, L and Y races have solid flanges, which sustain light or intermittent thrust loads. T and Y races with internal snap rings have equal radial load-carrying capacity but are not recommended for applications under continuous thrust. T, Y, L and W races may all be mounted using roller ends against the solid shoulder or internal snap ring for purposes of locating the outer race axially.

2. CIRCUMFERENTIAL LOCATION

An ample choice of outer race locating methods may be used with HYATT Hy-Loads. Circumferential location is often by a press fit. (Generally the rotating race should be applied with a press fit and the stationary race with a push fit.) When a push fit is used, axial clamping against the race ends provides satisfactory circumferential location. Positive circumferential location is provided by an outer race dowel.



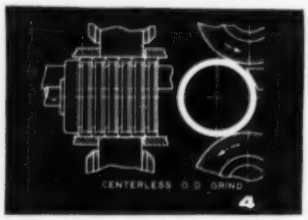
3. AXIAL LOCATION

Axial location of an outer race is usually by pressing or pushing the race to a housing shoulder. The race may be prevented from "walking out" of the housing bore by the flange or snap ring operating against the roller ends. Axial clamping against a housing shoulder or snap ring provides positive axial location. However, if a shoulder is not available in the housing, an auxiliary holding device such as an external snap ring or an outer race dowel is needed. HYATT Hy-Load Bearings can be supplied to original equipment builders with outer races having a snap ring groove (Figure 2) or a blind dowel hole (Figure 3), at moderate increase in cost.

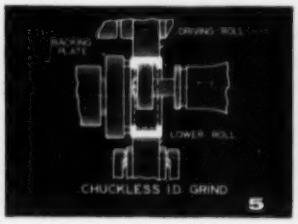
4. OPERATIONAL REQUIREMENTS

Quality controls are rigidly applied to all HYATT outer races to maintain: a. Minimum wall variation; b. minimum runout of race ends to bore; c. minimum runout of race flange inner faces to bore; d. minimum pathway and outer diameter taper; e. minimum outer diameter tolerance.

5. MANUFACTURING PROCEDURES



After careful primary machining and heat treating, ends are faced off square and parallel by a double end grind. This provides a reference surface from which all runouts and squareness can be gaged. Outer race diameters are generated by the centerless grinding method to provide an O.D. with as little out-of-round as practical. The through-feed method is a valuable economy (Figure 4). Next, the pathway (or race I.D.) is ground centerless, generating a cylinder concentric with the O.D. cylinder, by driving the race on the O.D. and positioning the grinding wheel relative to the drive roll (Figure 5). Finally, flanges are ground using the race ends as a reference. The result is a race of as nearly perfect geometry as is practical (Figure 6). Critical final inspection completes the procedures.



WASHINGTON OBSERVER

Hopes for better construction statistics out of Washington took a blow last week when the Senate Appropriations Committee came out against any of the increases sought by the industry and the Administration for the Department of Commerce.

At stake is $1.35-million approved by the House—(1) $1-million of the $1.8-million asked for a one-shot inventory of housing, which would give a picture of the quantity and quality of housing available, and (2) $350,000 of the $600,000 asked to improve the regular construction statistics now being gathered by the Business and Defense Services Administration.

A fight will be made on the Senate floor and in the conference committee to salvage at least part of the money the House approved.

•

Government is helping highway departments on earthmoving jobs by approving lump-sum bids instead of price-per-yard bids on federal aid construction projects. This type of bid will apply to the new highway construction bill now being approved by Congress.

The procedure permits savings on engineering manpower by making it unnecessary to do the field surveying and office calculations on quantities as required on unit-price contracts.

•

There's still a chance for a multi-million school construction bill according to Republican and Democratic strategists in Congress. Both parties want a program, and the House Education and Labor Committee approved a bill last year that would authorize $1.6-billion in grants over a four-year period and allow the government to buy up to $750-million in school bonds.

Threat of an anti-segregation rider has kept bill bottled up in the House Rules Committee.

New strategy will be tried to get the bill through the House. The idea is to push for action first on the Administration's civil rights legislation, which gives the Northerners a chance to get on the record as anti-segregationists. Then they say they can get a majority in the House to vote down the rider on the school bill.

Proponents have been counting votes and say they can win but they admit the vote will be close.

•

A new court decision threatens urban renewal by helping speculators. The decision of the Federal Court of Appeals in Washington may change the long-established procedure for fixing the price of property condemned for slum clearance and urban renewal programs.

Court allowed a price covering series of mortgages put on the property by a number of real estate operators. The decision said the property owner should be paid $9,900 in order to cover the first, second, and third trusts, instead of the appraised $6,250 or the $7,000 award granted by a jury when the case was taken to court.

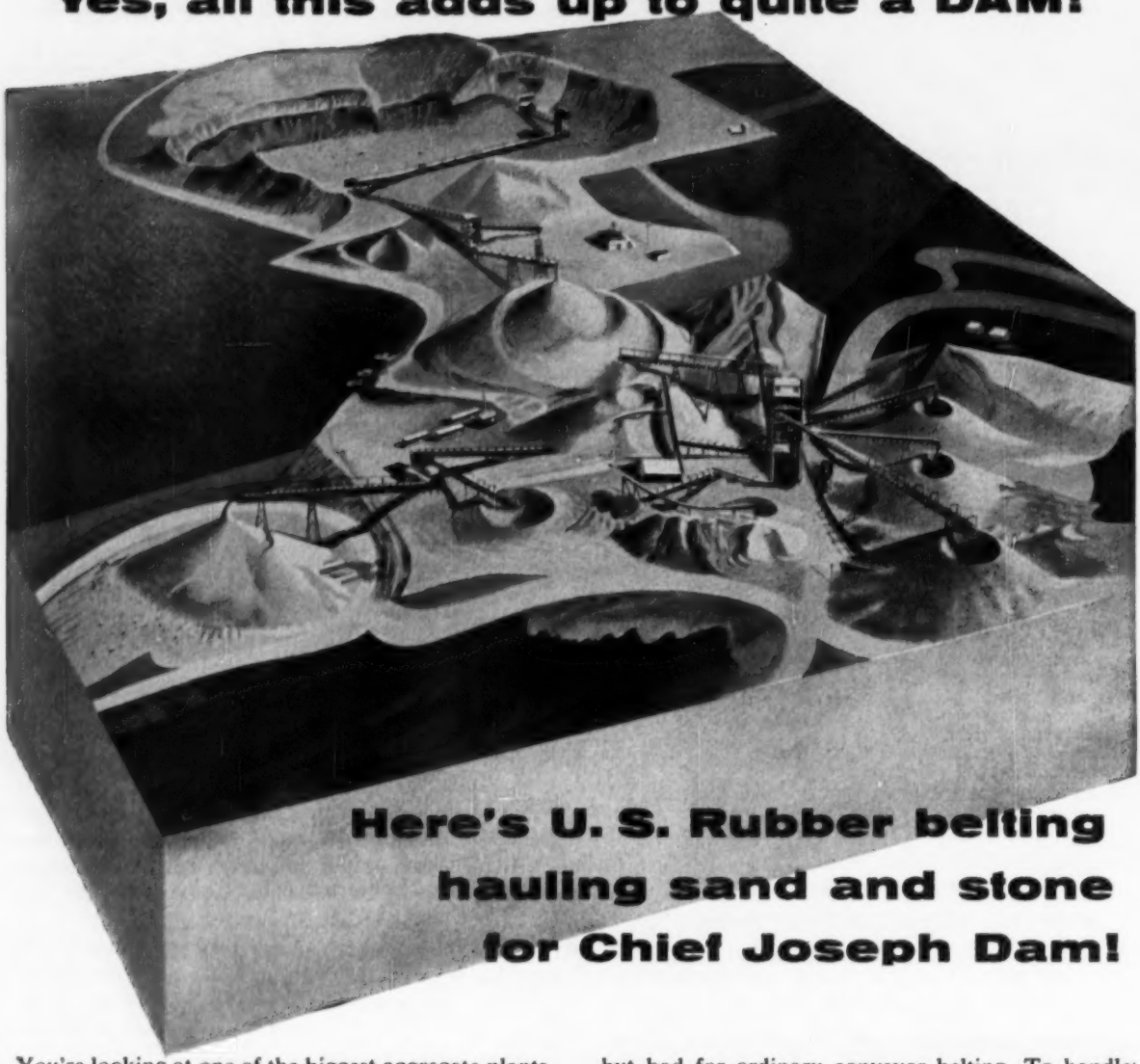
Urban renewal authorities say this makes price-jacking wide open for speculators on any property marked out for urban renewal.

Federal government will appeal to the Supreme Court to get the decision reversed.

•

Showdown is coming in craft vs industrial union fight over plant construction. The issue is on the AFL-CIO Executive Council agenda at next week's meeting in Washington—the first between Federation President George Meany and officers of the Building Trades Department since the dispute became the biggest conflict inside the merged union

Yes, all this adds up to quite a DAM!



Here's U. S. Rubber belting hauling sand and stone for Chief Joseph Dam!

You're looking at one of the biggest aggregate plants ever set up. It supplies aggregate for concrete for the big Chief Joseph Dam in the State of Washington—the dam that will have the world's largest single-unit powerhouse under one roof, the dam that will rank second only to Grand Coulee in operating capacity. Nearly 2 million cubic yards of concrete will be needed to build Chief Joseph.

This aggregate (sand and stone) ranges from fine sand to extraordinarily heavy boulders as large as 20" in diameter. The rock breaks clean, leaving sharp edges which are good for concrete interlock but bad for ordinary conveyor belting. To handle this most critical portion of the haulage, United States Rubber Company conveyor belts were selected. Although now in their fifth construction season, the belts are still going strong. This is another example of U. S. Rubber's Three-Way Engineering Service: "U. S." Belt engineers work with the designers of the conveyor system and the engineers of the dam—to provide the *right* belt for the jobs.

"U. S." Belting and Engineering Services are obtainable through the 27 "U. S." District Sales Offices or write us at Rockefeller Center, New York 20, N. Y.

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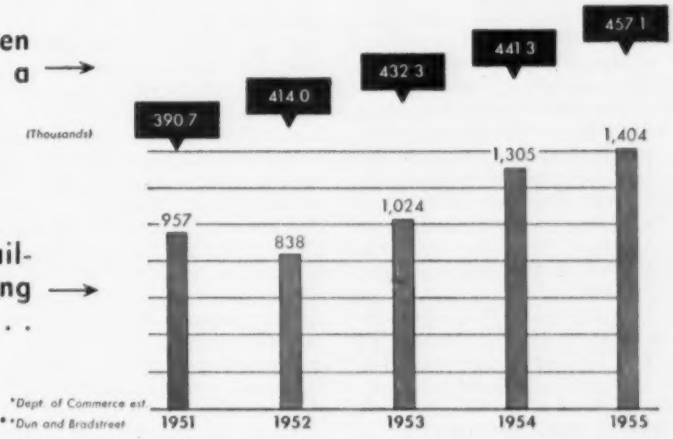
The Boom Has Pitfalls:

*Construction has been adding new firms at a rapid pace, but . . .

**. . . the number of failures has been increasing at an even faster rate . . .



What Causes Contractors to Go Broke?

Clyde C. Henning
Associate Editor

For a construction industry sailing along on the biggest boom in its history, Dun & Bradstreet last week ran up some small craft warnings. The credit agency, which keeps a close tab on failures in all types of industry, reported that contractor failures for the first four months of this year ran 37.7% ahead of the same period in 1955.

No one pretends that the construction industry in general is in trouble—or that it is likely to be in the foreseeable future. In fact, on a number of basis, the total failures among contractors is small in relation to the number of firms in the field. But, the rate of failures is growing far faster than the rate at which contractors' ranks are swelling.

In 1951, for example, the Department of Commerce estimated that there were 390,700 contracting firms in the nation. That same year, Dun & Bradstreet reported 957 failures—or about 24 failures for every 10,000 contractors.

The next year, the rate dropped to 20 per 10,000, but in 1953, the rate climbed to 23 per 10,000.

By 1954, the failure rate was up to 29 for every 10,000 contractors—and in 1955, it jumped to 33. And the figures for the first four months of this year show the rate is going still higher.

General contractors apparently have been the hardest hit this year. Failures in this group are up 63.4% over the comparable period last year, while subcontractor failures are 24.4% higher and other contractors are going out of business 40% faster than they did last year.

At the current level, contractor failures closely approximate the rate of failures for all types of industry lumped together. But the figures—at least for construction—represent only the part of the iceberg that appears above the surface.

The reason for this is the use of surety bonds for almost all public works projects and for many private construction jobs as well. It is true that some contractors, who are bonded on a job, still go into bankruptcy. But they are usually the exception, not the rule, because the surety companies will go to almost any length to keep a contractor in business—if they feel that he is honest and capable. Because of this, contractors sometimes stay out of the bankruptcy courts when other businessmen faced with comparable financial troubles would have to padlock their doors.

With the construction industry's problem of failures getting more serious, the obvious question is "Why are contractor failures going up when construction awards are setting all-time records?" The No. 1 culprit may be the boom itself.

The industry has had since 1951 a net gain of nearly 87,000 firms—attracted by a vision of fat profits that often turned out to be an illusion.

• Taking on Too Much Work

Bankers who specialize in contractor financing and the surety companies who must make good on the contracts when the builder defaults are agreed that the biggest single reason that contractors fail today is that they take on too much work.

One of the top bankers in the field summed up a sentiment shared by the surety men when he said, "The cases of complete failure that I have seen over the years are usually

those where a contractor has spread his resources so thinly over a number of jobs, or has concentrated them so greatly in one or two jobs, that he did not have the safety margin required to absorb a loss."

Of the two extremes cited—the man who has too many jobs and the man who has everything sunk in one or two big jobs—it is the first problem that seems to be the most serious.

As the volume of work poured forth in the post-war period, mounting each year to new record levels, two significant things happened—more firms entered the field and the existing firms built up their organizations to handle a larger volume of work. When competition became tight, these firms bid lower and lower to get contracts.

As a result, their profit margins shrank, and instead of trying for fewer jobs and higher profits per job, many contractors went after a bigger volume of contracts and held their profits to a minimum. When they bumped into unforeseen job problems, they could not weather the storm. This group, according to the experts, has been a big factor in the rise of failures.

• Not Enough Capital

When a contractor goes to his bank for a loan or to his surety for a bond, one of the first—and one of the most important things—that they check is the amount of uncompleted work that a contractor has on hand.

Some bankers use a rule of thumb that a contractor should not take on any new work whenever his uncompleted work adds up to more than ten times his working capital. This rule, like many others, is only a guide. There are many times when a banker will ignore it, particularly if the contractor can show that he doesn't have all of his personnel and equipment tied up on his present contracts, or when some of the contracts are close to completion.

Overextended contractors sometimes get bank loans—or surety bonds—they actually do not deserve. This contributes to the failure rate and even more to the heavy losses absorbed by the sureties. They get this backing because banks and surety companies want contractors to grow. If a firm has a good record—and looks outstanding—bankers and surety men hesitate to hold the company down. When they're right—and they often are—the small contractor finds it easy to become big. When they're wrong—which also happens—the contractor takes on too much work, falters and begins to sink. Then the surety companies launch an expensive rescue.

An example of this, cited by surety men as representative, involved a midwest construction company, which had grown slowly over a period of more than 30 years.

When the founder died, his sons, both of whom had been in business with him for several years, took over. Less cautious than their father, they went out to aggressively build up the business. Within a short time, they had contracts in a seven-state area, and their working capital, equipment, and trained personnel spread thinner and thinner.

Some of the contracts turned out to be far less profitable then expected. When trouble developed on two of their jobs almost simultaneously, they were on the verge of bankruptcy.

In this case, because the firm was basically sound, the surety company kept them in business. With a more conservative approach, the sons discovered they still had opportunity to grow and they turned the company into an outstanding success in later years. But they had learned a lesson—the hard way—that many contractors today might heed.

• Lack of Experience

Tied in closely with the volume of work a contractor has under way is his experience—or lack of it—when he tries to switch from one type of con-

(*Continued on page 24*)

Here Are Three Forms of Protection

Although widespread use of surety bonds to protect owners, contractors, subcontractors and suppliers is sometimes regarded as a Twentieth Century phenomenon, the surety bond has a long history in the construction field.

Records show, for example, that a gateway construction contract let in Rome in 106 B.C. provided that "whoever shall be awarded the contract shall furnish bondsmen secured by real estate to the satisfaction of the magistrates."

This same contract also had a provision that many a modern contractor would envy—it called for payment to the contractor of one-half of the contract price as soon as he had executed his bond, with the other half to be paid upon completion and acceptance of the work.

This bond is a direct ancestor of the performance bond which along with the bid bond and payment bond, constitute the three principal types used in the construction industry today.

The first of these three, the bid bond, guarantees that you will, if awarded a contract, accept that contract on the exact terms of your bid, and will execute performance and payment bonds—or forfeit a sum of money.

Usually, each bidder is required to furnish a bid bond in some specified amount (from 5% to 20% of the bid price). This bid bond protects the owner in case the low bidder refuses to sign the final contract and furnish his performance and payment bonds. If the low bidder does breach the contract in this manner, the owner can recover as damages the cost of re-advertising the job, any additional architectural or engineering costs—and the amount by which the new low bid exceeds the bid of the defaulting contractor.

A performance bond is a guarantee by the surety that the contractor will fulfill the terms of his contract, i.e., build the project according to plans and specifications within the time allotted in the contract and in a workmanlike manner.

A payment bond is a guarantee by the surety that the contractor will pay his suppliers for labor, materials, and services rendered in the construction of the project.

Are You a Good Risk for a Bond?

What makes a contractor a good risk for a bond? What makes him a poor risk in the eyes of surety men? If you are the contractor, here are some of the things they will try to find out about you and your business.

What Bond Do You Need?

First, what type of bond do you want? A bid bond, a performance bond or a payment bond? The information you will be called upon to give to the surety applies to all three types of bonds, with only minor variations.

If you're seeking a bid bond, the surety will want a copy of your most recent financial statement, a copy of the bid advertisement and a set of instructions to bidders.

If you want a performance bond, or a payment bond—or both—you'll be asked for your current financial statement (and often statements for two or three preceding years), a copy of the contract and specifications and an explanation of exactly what part of the overall job you will perform.

Is Your Bid too Low?

And that's only the beginning. Who is the architect or engineer on the job? What is the estimated contract price—and what were the other bids in comparison with yours? In this respect, the surety wants the names, addresses and bids submitted by the other bidders. This can be trouble spot No. 1 if you're trying to get a bond, especially if your bid is substantially below the others submitted. You'll have to answer some pointed questions if your bid was $500,000 and all other bids ranged from, for example, $700,000 and up. The sureties want to make sure you've included all the items required, that you've added the figures correctly—and that your estimates are sound.

The surety will want to know what the architect or engineer's estimate is for the job—and what you estimate the job will cost you. You'll be asked when the work must be started—and when it must be completed, and what penalties are provided for failure to complete by the contract date.

How Will You Be Paid?

Naturally, the surety will want to know how the owner will pay you—and when. Will your payments be in cash, bonds, warrants or other securities? How much of the contract price will be withheld until completion? How much of the job is guaranteed after completion.

Then, you'll be asked how much of the job you plan to sub—and whether or not your subs will be bonded. (If your subs are bonded, you'll have an easier time getting a bond for the general contract.) If your subs aren't bonded, the surety will want to check them carefully.

Are Your Subs Qualified?

Occasionally, the surety may feel that one or more of your prospective subcontractors lack the experience, financial resources or organization to handle the particular job in question. In that case, you'll be asked to get another sub who is better qualified. Then, the surety will want to check on your financing for the job.

Sureties aren't in the business of lending money—so you'll have to get your working capital at the bank. The surety will want to know whether you have arranged for a loan for the job. If not, they'll probably recommend that you work out your line of credit first—then come back for the bond. They'll check the bank that has given you credit. They'll want to know the terms of your bank loan and what collateral, if any, you had to give the bank. And, they will want to know whether you have assigned—or intend to assign—to the bank any of the payments you receive from the owner.

Have Enough Working Capital?

Your line of credit and your cash in the bank will be checked so that the surety can determine whether or not you have enough working capital for the job. Although the percentage varies, a good rule of thumb is that you should have working capital equal to about 10% of the contract price, e.g., you should have working capital of $100,000 on a $1-million contract.

While this formula can't be applied at all times or to all types of work, it plays an important part in the surety's decision on whether you are a good risk on a particular job. It works as a safeguard for both contractor and surety because it often keeps a builder from taking on a job that's too big for him to handle.

Have You Done Similar Work?

That leads into the next major item that is used to rate a contractor—experience. The surety will question you closely to find out whether you have performed similar work before—and whether you did it on your own or as an employe of another contractor.

Just as banks frown upon the roadbuilder who tries to move into the building field, or vice versa, the surety companies prefer a contractor to stay with the kind of work with which he is most familiar. The problem, of course, turns up whenever one type of construction is sagging at a time when another type of work is booming.

If you want to switch to another type of construction, and you have a good record, good financial resources and a sound organization, the sureties probably won't shut the door in your face. But, they may urge you to go slow, start out with small jobs in the new field—and get your education when the stakes aren't too high.

There are many other things the surety companies will want to check—but two are especially important. They'll want to know your equipment and materials situation—and how much other work you have on the books.

You'll be asked for a list of the equipment you own, whether you'll need to buy more equipment to handle this job and how much it will cost you.

On materials—and this is especially important in these days of shortages—you'll be asked whether you have firm prices on the materials you need and what assurance you have that you'll get delivery.

Do You Have Too Many Jobs?

The last big question is how much other work you have that is uncompleted—whether you have any bids in on other projects that have not yet been awarded.

One of the major reasons for contractor failure is taking on too much work, at one time. They dont expect a contractor generally to have only one project under way at any given time—but they have learned from sad experience that a builder can flounder easily when he has so much work that his working capital, equipment and organization is strained.

What's Your Reputation?

Those are some of the tangible items that sureties can check to find out whether or not a contractor is a good risk. The intangibles—often as important—are the man's integrity, intelligence and personal habits—and there the sureties make their gambles—shrewd guesses based on years of interviewing contractors across a desk, and getting to know them personally and finding out their reputation among other builders and suppliers.

Pass this acid test and you'll find that for a comparatively small cost (½% to 1% of the contract price) you'll have security, help if you need it—and probably a better knowledge of your organization than you had when you walked through the door.

struction that is lagging to another type that is booming.

Surety men rate lack of experience well up on the list of reasons for contractor failure today. And, they describe current variations of the now classic "upside down sewer" story of the 1930s.

Sometime around 1932, a builder who had been highly successful in the sewerage field watched his contract volume dwindle away rapidly and decided to try some other type of construction. He submitted a bid on levee work on the Mississippi and went to the surety company for a bond. When the surety questioned his lack of experience in levee work, he commented with great sincerity that in his opinion, a "levee is a sewer upside down." Instead of removing earth, as he did in sewerage work, he would simply have to "pile it up" for levee construction, he explained. Because of his past record, the surety company gave him a bond—even though it had some obvious misgivings. The builder quickly learned a new vocabulary—terms such as "burden" and "berm"—that translated into trouble. The surety brought in an expert levee firm after the contractor defaulted. And, the original contractor achieved a comparatively rare distinction—he went broke on one job.

Surety men, who watch the experience category like hawks, don't always pounce on the contractor who wants to pick up a contract in a field where he has not had previous experience. But they try to hold him down on the size of the new work, to minimize the losses and enable him to gain the new experience he needs without risking a major disaster, or jeopardizing his position in the field he already knows.

• Poor Record Keeping

The problems of overly-ambitious contractors extending themselves beyond their capacity and switching into fields in which they have no background are in the spotlight at this time. But there's one ghost that haunts bankers and surety men at all times—the contractor's poor financial records. It is what surety men usually have in mind when they condemn certain contractors for "poor management"—and some regard it so seriously that they feel it should head the list of reasons for contractor casualties.

The experts cite case after case of contractors whose accounting methods are so inadequate that "they don't know themselves when they're in trouble."

Beyond a look at his bank balance (a highly-unreliable barometer) many a contractor has no idea of whether he is making money or not. Payments for one job are commingled with another, liabilities are haphazardly calculated, profits are only a guess.

A somewhat embittered surety expert, who has spent long hours in detective work (trying to find a profit in a contractor's operations), said that too many builders use the proceeds of the current job to pay old bills. Their constant hope is that the work under way will somehow bail them out. "Two losses back-to-back, and another contractor is out of business," he added.

• And Poor Planning

Sureties—in theory—do not expect losses when they write a bond. As a practical matter, however, they know they will have to take it on the chin from time to time—and poor planning by the contractor is one of the reasons.

Some examples of poor planning: failure to get a detailed survey of a job site (which led one big earthmoving contractor to heavy loss when he ran into hard rock that should have been discovered before the job was bid); failure to plan materials deliveries far enough in advance, especially when certain items are short, and failure to organize the project in such a way that subcontractors get on the job—and off—in order to do the work on schedule.

These, like many of the other practices cited, are management failures, that can be avoided. There are others, too, that carry a lesson for contractors. Just as some builders seem to avoid accountants, others appear shy about seeking legal advice.

One contractor ran into serious trouble, for example, because he "turned the building over to the owner," then cancelled the fire insurance which had protected him all through the construction period, because he believed he had been relieved of his obligation. However, it turned out that the building had not been formally accepted by the owner. And, before it could be, a fire destroyed virtually the entire building. When the case went to court, the contractor and the surety were held liable. The contractor went bankrupt, the surety suffered a heavy loss. But a routine check with his attorney, who probably would have warned him about his continuing liability, would have persuaded him to keep the fire insurance a short time longer—and he might be in business today.

• Fraud Is Another Factor

Surety men who have spent long years in close association with contractors have a high regard for their character and integrity. They feel that honesty is a fundamental requirement in the field because of the involved credit relationships, the inherent risks, and the lack of a standard "product", summed up by one man in the statement, "No contractor ever builds the same project twice." Their praise for the contractors' moral and business standards seems well-founded statistically because few of the failures reported are traced to fraud. Yet almost every surety has encountered at some time, the contractor who concealed liabilities because he was "afraid he wouldn't get a bond," or the man who deliberately dissipates his assets when he knows—before the surety does—that a job is "turning sour." When a surety turns up an outright case of fraud, it fulfills its obligation on its contract and pays off the subs and material suppliers, finishes the building—with a new contractor—and lets the "con man" go to the wall. Their feeling: It's better to take a loss on him once and get him out of the field.

Sometimes, the fraud is hard to detect. Example: On a Rural Electrification Administration job, the contractor was required to set poles seven feet deep. When he hit rock at four feet, he ingeniously cut three feet off the poles, so that their above-ground-height would be uniform and the poles would appear at their proper depth. A disgruntled employe disclosed that one, the surety had to make good.

"Fortunately, such incidents are few and far between," one surety said. "They account for only a small part of the failures—and near-failures in the contractors' ranks. But even honest men can go wrong. All we hope is that by taking a close look at what has caused other builders to fail, some of the really capable men in the business today will avoid the same mistakes."

CHANGE NOW . . . says Turnpike Commissioner Torrance who would up auto rates, lower truck rates.

NO LATER . . . says Turnpike Chairman McSorley—against rate change now on Pennsylvania 'pike.

No Toll Change . . . for a While

After nearly three weeks of turmoil over financing problems and partisan politics, the Pennsylvania Turnpike Commission has postponed scheduled toll revisions pending an overall operations study.

The boost in passenger car tolls and reduction in truck fares were slated to start May 25 to offset disappointing revenues on northeastern sections of the superhighway.

Postponement of rate revisions provoked a series of disagreements among the commissioners. It also set the scene for three other developments:

- A five-man State Senate committee has been set up to probe the toll system.
- An industrial engineering firm will be brought in to make a thorough study of the Turnpike Commission, especially in regard to its efficiency and the reduction of expenditures.
- Some top commission personnel have been fired and a general political turnover is anticipated in appointive agency jobs.

The new tariffs, which reportedly would bring in up to $4 million a year, were to have gone into effect May 25 with the opening of the Delaware River bridge linking the Pennsylvania and New Jersey Turnpikes (ENR May 24, p. 24). Under the rate revision passenger car tolls would have been boosted 41% from the new bridge to Ohio, a distance of 360 mi. Tolls for the most commonly used 60,000-lb gross weight trailer trucks would have been lowered 20%.

The proposed rates were unanimously adopted by the Turnpike Commission May 15. At that time the five-member agency, with two vacancies, consisted of Chairman G. Franklin McSorley and Joseph J. Lawler, Jr., both Democrats, and Republican James F. Torrance, Jr.

A political explosion followed announcement of the new rates, and Gov. George M. Leader ordered a reversal of the action. Torrance refused to change his position, saying that if the new tolls did not go into effect May 25, the commission would default on its 1952 bond issue of $298 million. The governor then gave an interim commission appointment to another Democrat—John F. Byrne of Philadelphia. This made the Democrats a majority in the agency and outvoted Torrance on postponing the toll revision.

Meanwhile, the trustee for the bondholders – Philadelphia-Fidelity Trust Co.—reportedly doesn't object to a "temporary delay" in the new rates. But unless the agency itself boosts the tolls by July 15 the trustee is expected to step in and do it by reason of commission default.

• Financial picture—The turnpike from Valley Forge west to the Ohio line, financed with a 1948 debenture of $210 million, is in excellent shape dollarwise. It has a surplus of some $18 million in its kitty. Bonds are being retired 10 years ahead of schedule and the entire underwriting will be paid off by 1961 or 1962.

But on the turnpike east and northeast of the Valley Forge interchange, financed by the 1952 underwriting, tolls are running 40% behind anticipated revenues on sections now in service. The stretch from Valley Forge east to the Delaware River and New Jersey 'pike connection was opened only last week, so its full traffic potential has not yet been realized. And the northeastern extension to Scranton from Philadelphia is open only as far as Allentown.

Turnpike officials said that under the bond agreement they can't wait for the eastern projects to prove their revenue. Some $1.2 million due on the 1952 bonds for those sections will be paid on June 1. But although enough revenue has been collected to pay interest this year, it doesn't meet requirements of the loan, which calls for a 20% reserve fund.

After the 1948 loan is repaid, income from the westward sections will be used to pay off bonds for the Delaware River and northeastern extensions as well as the Delaware River bridge. But until these western-portion bonds are redeemed none of the funds collected on that stretch of the 'pike can be diverted to the eastern branches.

• The viewpoints—Said Commission Chairman McSorley: "I don't think any group of men can make a decision that will be final. When I was informed that the Senate had adopted a resolution, I immediately invited them to come down and offered cooperation and to delay any rate changes until the matter is resolved. The Senate probe and the industrial engineering study will substantiate the needs for higher rates."

Said Torrance: "In view of disappointing income from the northeastern sections all we did was anticipate a situation in which the 1952 bondholders would have forced us to make the changes. I stand by the original order on fares by the commission because regardless of what the tollroad agency does the trustees must by July 15 order a revision in charges."

Said Governor Leader: "I was under the impression that these revised rates would not go into effect until July 1 or 15, which would have given us adequate time for the engineering study. I think that properly operated and with adequate funds we can give northeastern Pennsylvania enough of a shot in the arm to make the northeastern extension pay. The disappointing result in the eastern and northeastern sections of the turnpike is due to the fact that we don't have enough truck traffic to keep income up."

Lawler, who is Highways Secretary and ex-officio member of the commission, was responsible for presenting the resolution calling for the industrial engineering study.

NSPE's New Look

Consultants and employees to form functional group

The National Society of Professional Engineers, in Atlantic City, N. J., last week for its 22nd annual meeting, succeeded in setting up its first functional section. An organization has been set up within NSPE for engineers in private practice, consultants and employees of consultants —a forum in which it is intended that all who participate will discuss problems of private practice, including salaries, fees and ethics.

While consulting engineers present engaged in the day-long deliberations —dull at the start and later quite lively —to evolve "a great step forward for NSPE," three other functional section conferences were held as informal discussion groups among engineers-in-industry, engineers-in-government and engineers-in-education. Each of these three functional groups busied itself with a discussion program on professional matters; none followed the lead of the engineers-in-private-practice in the formalization of a functional section.

The functional section idea is not new among state societies within NSPE; the Ohio State Society of Professional Engineers was reported to have eight groups now, the oldest of them with 15 years of experience.

On the national level, the groups are regarded by NSPE President Allison C. Neff as similar to technical divisions of the founder societies. He sees them as an attraction for increased NSPE membership.

• **Employee question resolved**—Consultants in NSPE lost little time in organizing. The society's board approved a constitutional by-law authorizing functional groups on Thursday; the consultants' action followed on Friday. But it did not follow entirely smoothly or without discussion.

The group passed in fairly perfunctory fashion through the business of establishing the functional section as described by the new by-law. They elected A. C. Kirkwood of Kansas City, Mo., as its chairman for a year and supplied his executive committee with a secretary and six regional vice-chairmen. It was when a rules committee was discussed that the big question arose: Should participation in a functional section for consulting engineers in private practice be open to employees of this group?

"Exclusion of employees . . . only those who have ownership interests," was the first viewpoint expressed. The opposition was on its feet, calling any employer group within NSPE an open invitation to unionization of employees. An expression of interest in training the next generation of consulting engineers in the business problems of private practice won a round of enthusiastic applause. Participation will be open to employees.

On a second knotty question—whether constructors should be included—it was first argued that contractors be excluded; only those deriving income from fees would qualify. In further discussion it was asserted without opposition that this functional group of NSPE ought to be the forum for discussing pros and cons of the so-called "package deal" of design and construction.

Final action gave the rules committee "widest possible latitude" in formulating regulations on who will participate in the new national group of engineers in private practice.

It is not intended that any policy-making rights of NSPE's board will be taken over by this functional group—or any others which NSPE hopes will be formed. Interests of the functional group will be made known to NSPE's board for acceptance and support without major revision, or for rejection. Neither is this functional group at the national level intended to require such an organization in every state society. However, NSPE hopes such grass roots organization might follow this initial organizational accomplishment of its consulting engineer members.

By-law 22 authorizing NSPE's functional sections, calls them forums for discussion and united action on matters of mutual welfare. Contact is to be maintained with similar functional sections of member state societies. Funds for promoting special objectives may be established by the functional section by any method approved by the NSPE board.

Sewers Go In

Homebuilder is forced to install dead-end lines

The United States Supreme Court on May 22 rejected a homebuilder's appeal from a local township order requiring installation of street sewers even though they are not to be used immediately.

The ruling by the court held there was no substantial federal question involved in the action filed by the Saxony Construction Co. of Lansdowne, Pa., against the Marple Township Board of Supervisors, Delaware County, Pennsylvania. Previous appeals by Saxony had been turned down in the Delaware County Court as well as in the Pennsylvania Appellate Courts.

The Board of Supervisors had ruled that the construction firm must install sewer lines for a 48-home development it was planning in the township. The builders assailed the order as unreasonable, insisting that the homes they planned would be adequately served by on-site septic tanks and cesspools. The firm insisted that it was being forced to pay for a "network of useless, dead-end sewer lines" and that it was being deprived of its property rights in violation of the Constitution.

In its answer, the township explained that it wanted the sewers installed to save the public the expense of later having to tear up the streets to install the facilities.

Joseph D. Calhoun, the township's attorney, noted also the rapid residential development of the area and told of plans for a county-wide sewerage authority. In rejecting the firm's appeal, the United States Supreme Court granted Calhoun's request for a dismissal of the action.

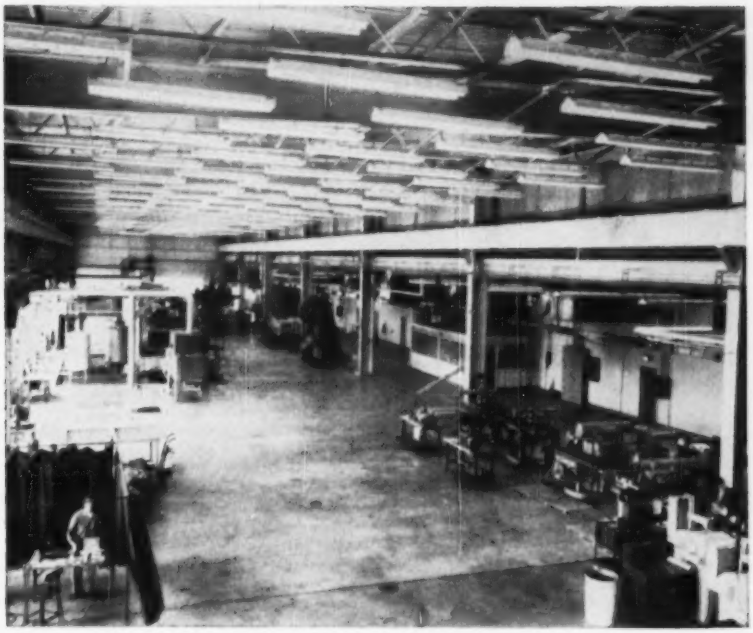
Pollution Bill Grants Are Kept Intact

A new, permanent federal stream pollution control bill, with its controversial construction grants section intact, will be voted on by the House next week. The bill, sponsored by Rep. John A. Blatnik, was unanimously approved on May 17 by the House Public Works Committee, following a special appeal from President Eisenhower for quick action.

Administration forces, strongly opposed to the construction grants proposal were left behind as the committee approved $500 million of such aid by a 26-8 margin. Democrats originally sought $1 billion in grants assistance, but saw the total chopped by half in subcommittee last month.

The $500 million is earmarked for construction of municipal sewage treatment plants. With disbursements held to $50 million a year over the next 10 years. The federal contribution to each project is pegged at one-third of its cost or $300,000, whichever is smaller. The committee authorized the Surgeon General, who would administer the funds, to make part of the money available as planning grants to municipalities able to finance the full cost of construction without federal assistance.

The grants provision faces another fight in the House, and, if it survives this test, again in House-Senate conference. The Senate has already approved a pollution bill that contains no federal construction money.



What makes this building different? It's a . . .

Plant for Reactor Parts

Production starts this week in the first plant built at private expense to manufacture and test nuclear fuel elements and related products. Babcock & Wilcox Co. has just completed its nuclear facilities plant at Lynchburg, Va., and has received its first shipment of fissionable materials from the Atomic Energy Commission.

Optimistic over the future of nuclear power, Alfred Iddles, president of B&W, also announced this week that work was about to start on an addition to the plant that will add 15% more floor area. But, he said, he did not know yet what will be produced in the addition.

Principal structures in the new plant are a 320 x 100-ft one-story fabrication building, an experimental facility and a boiler house. Choice of site, location of buildings and design of the structures all point up the problems that have to be solved by designers and builders for this new industry. In this case, B&W designed the plant, acted as general contractor and even fabricated the structural steel framing.

• **Product affects building design**—The fuel elements that will be fabricated initially at this plant consist of a sandwich of fissionable materials—uranium and thorium—and a protective covering of aluminum, zircomium and stainless steel. They have to be made to extremely close tolerances.

Although the materials used are not highly radioactive, special equipment had to be built into the plant to prevent, as much as possible, human contact with these substances. Furthermore, the AEC requires strict accounting for all fissionable material. (Highly enriched U-235 costs as much as $11,000 per lb.) These considerations were paramount in plant design.

In selecting a site for the plant six miles east of Lynchburg, B&W considered more than 90 factors—weather, communications, soil structure, waste disposal, isolation and possibilities of earthquakes and other disasters, to mention a few. The site covers 520 acres, providing both isolation and ample room for expansion. It is surrounded on three sides by the James River and on the fourth by 800-ft Mt. Athos. The soil is a heavy clay underlain by rock, which will prevent escape of fissionable material by seepage into the substrata, in case of an accident.

• **Critical experiment facility**—The 32,000-sq ft fabrication building is separated by 1,200 yd from the experimental facility, where scaled-down reactor cores will be tested. The test bay in the latter structure is 35 ft high and enclosed in 3-ft-thick concrete walls. However, power generated in core tests normally will be very low—probably a fraction a watt—but sufficient to yield desired physical and engineering data for design and operation of the prototype.

• **Nuclear fuel can't get out**—The fuel-element fabrication building contains a 320 x 50-ft manufacturing area; a laboratory area used for material accountability, quality control, research and development; and an administrative and personnel area, with offices, lunch room, toilets and locker and shower rooms.

Key to the design of this structure, according to D. W. Perkins, plant superintendent of construction and maintenance, is adequate provision for air change and decontamination.

Ventilating systems in the manufacturing area change the air 12 times per hour exhausting to the atmosphere 100,000 cfm. In addition, around equipment that might give off a more-than-average amount of nuclear particles, a total of 10,000 cfm of air is exhausted at eight points. This air is filtered to remove 99.5% of particles down to 0.4 micron in size. The filters will be monitored regularly to salvage fissionable material trapped.

• **Protective construction**—Walls and partitions around the manufacturing area are made unusually dust tight to keep radioactive material from escaping. The exterior wall consists of continuous 5-ft high aluminum windows with fixed glazing, above and below which are metal sandwich panels. These panels consist of a 2-in. insulating core, an exterior facing of brown, asbestos-protected metal and an interior facing of aluminum-painted sheet steel. (Aluminum paint is used extensively throughout the plant because it can be removed easily if contaminated.) Partitions are also of metal, and all joints are calked with a plastic, for dust tightness.

The floor in the manufacturing area is a 6-in. concrete slab on compacted fill topped with 6 in. of blue stone. The slab is heavily reinforced ¾-in. round bars 6 in. c-c to prevent cracks where fissionable dust might accumulate. It has a smooth finish for easy cleaning; even sweepings must be monitored to salvage fissionable and other expensive materials.

Fissionable material, when received from AEC, will be stored in vaults with 1-ft-thick reinforced concrete walls. It will be placed on shelves or in "bird cages," so that the density will always be several times less than that of a critical mass. Cadmium and boron liners can be inserted for additional control. The vaults are locked with heavy steel doors.

• **Wastes are segregated**—"Hot" wastes are piped for retention in a 4,000-gal.

YEOMANS

1999-1 N. Ruby St., Melrose Park, Ill.

Please send literature checked below:

☐ catalog 3007
☐ manual 1114
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Mr. Specification Writer:

Use this coupon..for free literature on sump pumps and sewage ejectors

Catalog 3007.. describes Yeomans Heavy-Duty Wet Pit Pumps for drainage, flood water, effluent boiler blowoff, hot wells, alkalis, and acids, etc.

Manual 1114.. describes sewage ejectors, bilge pumps, and "Drain-Dri" sump pumps. Includes fixture rating table, fixture capacity estimating curve, and water friction table.

Handbook for care of centrifugal pumps (Manual 2000)..applies to pumps of *all* makes..tells how to diagnose pump ills.. suggests maintenance timetable.

YEOMANS

. . manufacturers of: centrifugal pumps . pneumatic sewage ejectors . distributors . clarifiers . mechanical aerators . digesters.

tank farm about 1,000 ft away from the building. Recoverable fissionable materials will be returned to the AEC for reprocessing.

Duplicate "hot" and "cold" showers are provided for employes. Waste from the "hot" showers is discharged into the river after dilution and treatment to reduce radioactivity to a safe level.

Employes are required to change clothes on leaving hot work areas. Materials showing radioactivity will be laundered, the waste going to the tank farm, or burned in a special incinerator.

• **Expansion and flexibility**—In addition to the provisions made in the design to satisfy requirements peculiar to handling of fissionable materials, the more conventional needs of a manufacturing building also had to be satisfied: For example, provisions for expansion and flexibility in use of space.

The 320 x 150-ft addition just announced will be placed alongside the existing outer wall of the manufacturing area.

Flexibility is achieved with removable partitions and large bays—40 x 50 ft. The manufacturing area has an average height of 26 ft; the other half of the plant, 17 ft. There is only one row of steel columns in the interior along the center line of the building. These members are cover-plated, 24-in. wide-flange sections, designed as vertical cantilevers to take a 35-psf transverse wind load on the building exterior. Girder connections to them are welded, but not to transmit bending moment.

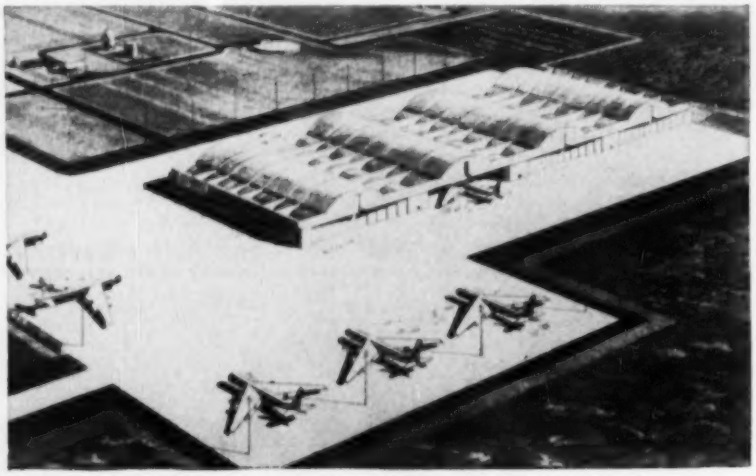
Between the girders are open-web steel joists spanning 50 ft and spaced 13½ ft c-c. They support 6-in.-channel purlins at 7-ft intervals, which in turn carry a cellular steel roof deck. Roofing is a fire-retardant plastic vapor barrier held in place with a non-flammable adhesive. Developed by Lexsuco, Inc., Cleveland, Ohio, this construction eliminates asphalt, which might contribute to spread of a fire.

North Carolina Okays Wage Hikes for Highway Engineers

With the objective of putting itself in the best possible position for anticipated rises in highway construction work, North Carolina's Highway Department last week announced new pay scales and ratings for young engineers.

Pay scales in the lowest engineering bracket: Engineer I—are raised from $3,708-$4,548 a year to $3,936-$4,776. Scale for Engineer II, formerly $3,936-$4,776, is now $4,428-$5,436.

All college graduates who hold engineering degrees now are rated at least as Engineer II. The lower category, Engineer I, includes men who do not hold degrees, but who have worked into engineering assignments on the job.



Thin-Shell Roof Will Be Prestressed

Boeing Airplane Co.'s $7.3-million, 8-place hangar, now under construction at Moses Lake, Wash., will have a prestressed, thin-shell concrete roof. Size of the four-bay building is 1,068x390 ft.

The owners took alternate bids on steel construction but chose concrete in expectation of lower maintenance costs and faster delivery.

Handling the job are three Seattle firms: Naramore, Bain, Brady & Johanson, architects; Worthington & Skilling, structural engineers; and Howard S. Wright & Co., general contractors.

"3 REASONS WHY WE USE CAT* ENGINES:

1 All the power we need to do the job easily.

2 Maximum dependability with minimum good care.

3 Operators prefer Cat power to work with."

NELSON ARMSTRONG, Supt.
Maxwell Bridge Co.

THOSE three reasons tell why Maxwell Bridge Co., of Columbus, Kansas, powers its cranes and excavators with Caterpillar Diesel Engines. The Koehring Crane shown here, placing I-beams for a bridge 5 miles west of Emporia, is one of 12 machines owned by Maxwell. Its engine? A Caterpillar D318, with well over 4000 hours on the meter.

Operators who have worked for this company from 8 to 25 years are particular about their power. Busy all year around, each man services his own machine. Naturally they want an engine that stays on the job without tinkering—and when they're asked to name their preference, they choose Caterpillar.

Most manufacturers of excavating equipment can supply Cat Diesels as original power. Or Caterpillar Dealers are ready to install these dependable engines as replacement power. A full line of engines is available. The D318, for example, is rated at 137 HP (maximum) at 2000 RPM.

For the power you need and for service and parts you can trust, call your Caterpillar Dealer. He's as near as your telephone.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

MODERN HEAVY-DUTY DIESEL ENGINES

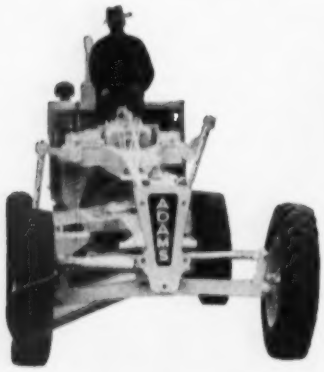
Today's big news

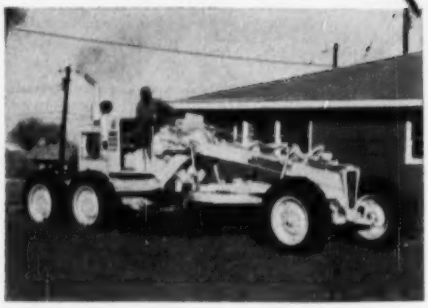
all new,

Swing blade from ditch cut to high bank cut

IN ONE CONTINUOUS MOVEMENT!

In most graders using hydraulic rams, the blade movement is restricted to length of ram's thrust, unless blade lift mechanism is reindexed at considerable loss of time. In the "220" this restriction is overcome by specially designed gear assemblies which permit 3 times the movement ordinarily accomplished by ram action only. Operator swings moldboard from ditch cut to high bank-cut in *less than a minute, without leaving cab.*

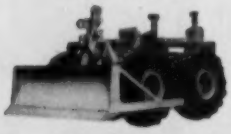




"220" moves quickly in and out of tight places, handles grading and leveling at low cost.

TOURNAPULL-SCRAPERS

TRACTORS



REAR-DUMPS

TRAVELOADERS

Bottom-Dumps, Cranes, Flat-Beds, Elegraders, Rollers, Snow Plows, Logging Arches and Skidders, Scrapers and PCU's, Rooters, Root Rakes, Wire Rope

in motor graders is the

60 hp ADAMS "220"

Here's a grader designed for general grading and road maintenance that gives "big grader" quality and efficiency at a modest investment. Low in price, big in value, the Adams "220" will out-maneuver and out-work any grader in its size and price class. Will do same wide range of work within its power and weight range as the larger Adams machines. In this new "220" you get all of these advantages:

Big 60 hp diesel engine — more power than any other grader in its class.

635 lbs. more weight on tandem drive wheels—for better traction, more work.

For road maintenance and clean-up, "220" has power to out-work any grader in its price class.

500 lbs. more weight on front wheels—for more down-pressure on blade and scarifier, greater stability.

5 forward speeds to 18.3 mph, 4 "creeper speeds" (optional) and reverse speeds to 3.2 mph.

Wide front tread (76"), rear tread (77"), gives greater stability, greater safety, easier handling on slopes.

Sturdy 4-wheel tandem drive utilizes full engine power.

Leaning front wheels, hydraulically operated, offset side-thrust, make short turns, provide easier steering.

Sturdy one-piece, welded, box-type frame, and strong Y-shape drawbar, withstand punishing shocks.

High arch frame provides plenty of clearance to maneuver the blade into any position quickly—gives higher lift of blade to clear shoulders when climbing out of ditch.

Big 10:00-24 tires on all six wheels provide firm footing and adequate flotation in soft going.

Simple, efficient hydraulic controls make handling easy. Adams exclusive gear segment permits adjustment of blade from ditch cut to vertical bank cut, on either side of grader, in one continuous movement.

10-ft. slide-shift moldboard standard equipment, power-shift optional, 12-ft. moldboard available.

Hydraulic brakes on 2 front tandem wheels, parking brake on transmission.

Optional Equipment includes 10 or 12-ft. power-shift moldboard, cab top, with or without enclosure, and rugged scarifier, to increase grader's use.

A low-cost tool for general grading and road maintenance

The "220" will do the same type work as its bigger brothers in the Adams line...Your LeTourneau-Westinghouse Distributor will give you complete facts and figures on the "220" or any of the other models listed, and help you select the size best suited to your needs.

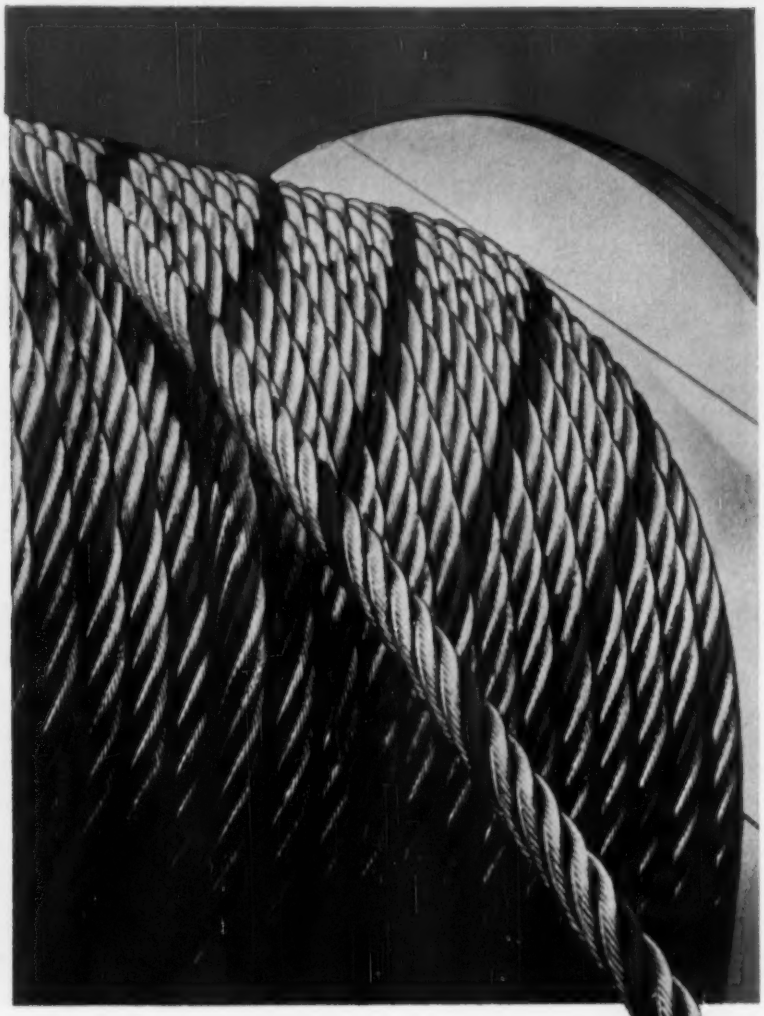
Model 220 — 60 hp — 14,865 lbs.
Model 330 — 80 hp — 20,500 lbs.
Model 440 — 104 hp — 21,500 lbs.
Model 550 — 123 hp — 23,500 lbs.
Model 660 — 150 hp — 27,730 lbs.

Tournapull, Roster—Trademark Reg. U.S. Pat. Off. AG-41-G

LeTourneau-WESTINGHOUSE Company

Peoria, Illinois

A Subsidiary of Westinghouse Air Brake Company



How to get more work out of your wire rope

Use the wire rope that consistently exceeds industry standards for strength and safety. Working life goes up. Costs go down.

Use Hercules Red-Strand — Hercules Flattened Strand — Porter Imperial Red-Strand.

LESCHEN Red-Strand WIRE ROPE

HKP

from leading distributors

LESCHEN WIRE ROPE DIVISION
H. K. PORTER COMPANY, INC.
St. Louis 12, Missouri

Canadian Power

Power put in limelight as Canadian engineers confer

The future of power in Canada—both the water and atomic varieties—received a great deal of attention at last week's 70th annual meeting of the Engineering Institute of Canada in Montreal.

Speakers foresaw early development of Canada's few remaining favorable hydro sites and by 1965 the start of a gradual replacement of conventional fuels with nuclear fuels by thermal stations. However, the country's western provinces may turn to the gas turbine as a prime mover when hydro sites are exhausted. It was noted that Canada's first nuclear power station—a 20,000-kw plant at Chalk River, Ontario—is expected to be in operation by 1958-59.

Automation in engineering was discussed by several speakers. Use of electronic computers was seen increasing the engineer's standard of living through increasing his productivity. One speaker thought that electronic processing is more applicable to the analytical phase of engineering than to the design phase.

Other major subjects on the three-day program included air pollution and the St. Lawrence Seaway and power projects. David Steinman told how the Mackinac Bridge was designed for aerodynamic stability, stating the structure was safe against oscillations from winds up to 966 mph.

Vernon A. McKillop of West Lorne, Ont., general manager of the London Public Utilities Commission, was chosen by the institute as its next president. McKillop will succeed R. E. Heartz.

Delaware Regulates Access Of Business to Highways

In a move designed to maintain the usefulness and safety of state roads, the Delaware State Highway Department last week had established new standards to control private individual or private business access to the roads.

Previously, property owners have been required to obtain permits from county engineers of the department. But now, such permits will not be issued unless plans meet new specifications. Among new requirements: Not more than two driveways will be permitted on any single highway, and maximum width of driveways may not exceed 50 ft; if pumps are used at a business site, they must be at least 15 ft from the right of way; vehicles may not be parked or loaded on the right of way.

216 loads per day for 3 scrapers
hauling through heavy traffic

Here the "C's" are push-loaded by a 204 hp crawler-tractor. Notice how units are heaping the sandy loam. In one day, the 3 "C's" averaged 216 twelve-yd. loads.

Tournapulls worked on wet, rough borrow pit. Units maintained good production, averaged 12 pay-yards per trip.

"C's" were stopped continually by heavy traffic on the county roadway haul. Units crossed 2 main highways enroute to fill... completed .8-mile cycle in 6.7 minutes.

To beat the heavy traffic load in Washington, the State Highway Department awarded a contract to K. L. Goulter & Son, Seattle, to build new U. S. Highway 99, west of Burlington.

"C" completes .8-mile cycle in 6.7 min.

When he got the 408,520-yard Burlington assignment, contractor Goulter sent his 3 C Tournapulls to the job. Working on this 2.46-mile, $530,000 project, the Tournapulls' job included building fill for an overpass which was 30′ high at center, tapering to grade at each end. Tournapulls hauled wet, sandy loam from a borrow pit. Machines averaged 12 pay-yards, loading in about 37 seconds... completed an entire .8-mile cycle in 6.7 minutes. This time included approximately 13 seconds for spreading. Each rig made 9 trips per 50-minute hour... the fleet of three rigs averaged 2,592 yards per day!

"C's" haul through heavy traffic

Tournapulls loaded in a rough borrow, traveled over hauls up to .8 mile. Units usually hauled in 3rd gear over the haul road, which was quite rough across the borrow. To and from the fill, Tournapulls crossed a busy highway and the Great Northern RR tracks, then crossed a busy secondary road, traveling in and out among automobiles and trucks. Despite these obstacles, the three Tournapulls hauled 216 loads in one 8-hr. day!

"Tournapulls are good rigs"

Goulter's Job Superintendent, Sam Bergstrom, is well satisfied with the production of his Tournapulls. He said they were "good rigs, keeping jobs on schedule. Tournapulls do all work assigned to them and do it well."

Operator Bob Miller agreed with Bergstrom on the Tournapull's ease of operation. He said, "I think these machines are very easy to control, and easy on the operator." The features that Miller liked particularly were the "C's" fingertip electric controls and their maneuverability in tight places. He said, "I have turned these machines where no other rig could have been turned."

Because of wet weather conditions, Goulter kept his "C's" moving between this job and one in Everett. When rain stopped production at the Everett site, operators drove the Tournapulls to Burlington. When local showers saturated the Burlington area, machines were driven to Everett. Tournapulls' fast, 30 mph speed enabled them to make the 40-mile trip in less than 2 hours. Owner thus "beat the weather"!

Get bigger profits with Tournapulls

For big-production dirtmovers, with fast job-to-job maneuverability, investigate Tournapulls. They'll give you peak performance on any job, big or small.

NEW improved 18-yard heaped capacity Fullpak "C" will give you faster, bigger loads than shown in this job report. New lower, wider bowl packs in load to back corners with live, boiling action, heaps quickly for big, low-void pay-load. Get details now.

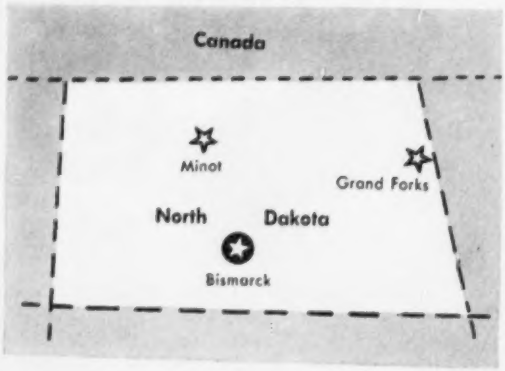
Fullpak—Trademark, Tournapull—Trademark Reg. U.S. Pat. Off. P-895-H-b

LeTourneau-WESTINGHOUSE Company

Peoria, Illinois

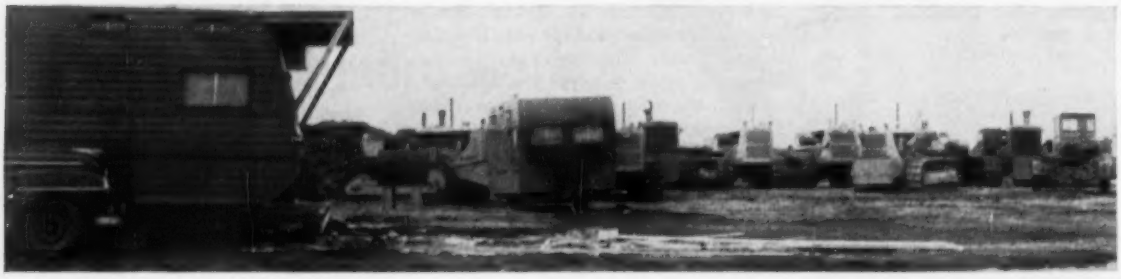
A Subsidiary of Westinghouse Air Brake Company

At both Minot and Grand Forks, N. D., airbase builders await the spring thaw. Combating a harsh climate and hostile geology, they must transform acres of windswept prairie into two complete cities for base personnel.



IDLE BUT READY, bulldozers and sheepsfoot rollers await weather that will permit uninterrupted operation.

SPARSE POPULATION means that most of the necessary and skilled manpower will have to be imported for these jobs.



TRAILER LIVING QUARTERS will be the worker's lot. Peak employment is expected to reach 600 at both bases.

Airbase Problem: Beat the Weather

In the years before World War II, the Army Air Corps turned down a plan to establish a training station near Minot because it didn't want to take on the challenge of North Dakota's climate. But today, Army Engineers and contractors are tackling the cold weather conditions to build strategic airbases both at Minot and Grand Forks.

The projects—the first major military construction in North Dakota—will plug the final gap in the Air Defense Command's chain of airbases that stretches from coast to coast along the northern U. S. Boundary.

Minot lies 50 miles south of the Canadian border; Grand Forks, 77 miles. Both cities are in the U. S. "cold trough", where Arctic air masses slide down a meteorological groove to produce about as consistently nasty weather as there is in the country. The thermometer gets down to −50. Ground blizzards are commonplace.

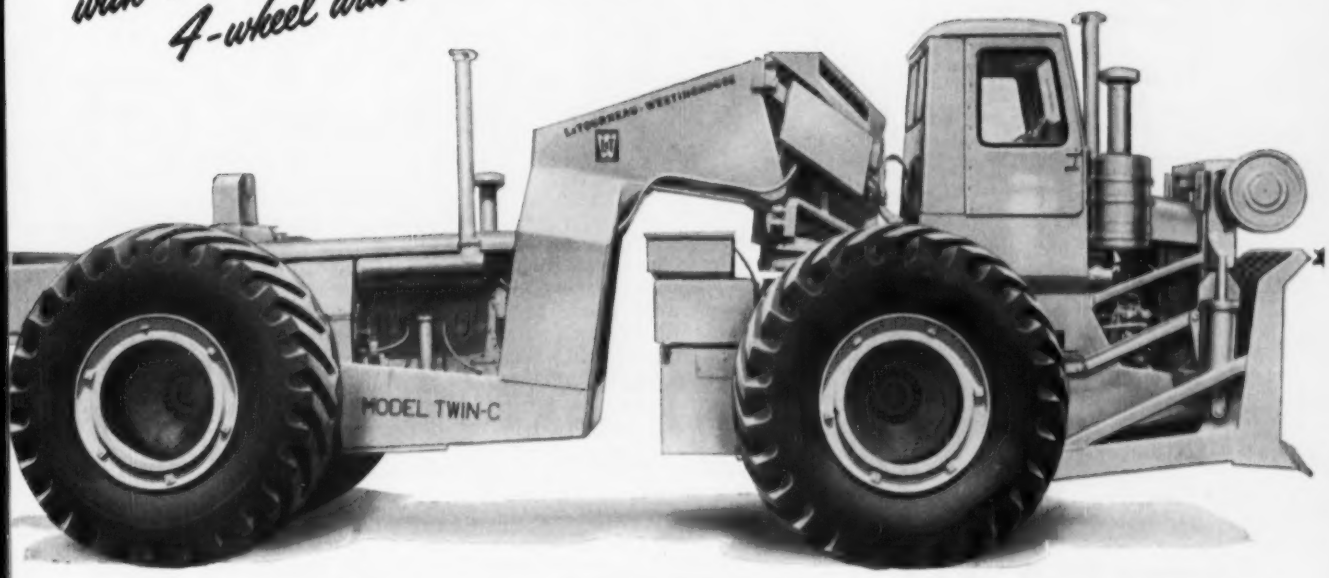
Today's Air Force—with its experience in Alaska and other northern bases—has learned to take cold weather operations in stride. But the difficulty of climate remains for those who must build the installations.

At present, contractors at both bases —all fighting a tight time schedule—

Now... world's **MOST POWERFUL and FASTEST push tractor...**

with 416 HP and 4-wheel drive

The Twin-C Pusher



...to give you bigger loads in shorter loading time

One operator and this powerful "Twin-C" pushes your biggest production scrapers for capacity yardage. On many jobs it will do this in less time than it takes 2 crawler-pushers with 2 operators. Rubber-tired speed, and articulated steer, give quick maneuverability for direct-line push, save seconds in picking up next load.

Synchronized power matches speeds of earthmovers — Twin-C speeds match loading speeds of modern rubber-tired earthmovers, take advantage of combined power of loader and pusher to get big pay loads *fast*. Torque converter, teamed with constant-mesh transmission in both front and rear engines, reduce "lug downs" and gear changes necessary in many pushers.

More usable power with rubber pushing rubber — You get greater usable horsepower and coordinated pushing force when you push rubber with rubber. You get full floating traction... tire treads follow tire treads... no loss of power to flatten out rounded tire-tracks into flat track-tracks. And Twin-C's 80,000 lbs. weight rides on four big 29.5 x 29 tires with 22-ply rating; each 2'5" wide for firm ground-gripping traction on any type of surface.

Additional Twin-C advantages:

- Forward speeds to 20 mph and fast reverse, plus "articulated" steer, enable Twin C to position faster behind scrapers.
- Big 49½ x 88" heavy, concave push-bowl is positioned by an electric motor to take full advantage of contact area provided by scraper push-block.
- Push-button electric controls with instant response, the same type controls used on LeTourneau-Westinghouse scrapers for 8 years, give you positive power-steer and accurate push-plate-positioning.
- Power-transfer differentials on both engines match pull to traction, automatically apply power to wheels on firmest footing. Keep big pay-loads rolling in sand, mud, and loose materials.

If your fleet includes production scrapers, you will want more information on the Twin-C Pusher. Ask your LeTourneau-Westinghouse Distributor for full details.

65,900 lbs. Drawbar Pull! Powerful 416 hp Twin-C Pusher push-loads scraper fast. In recent Dynamometer tests, Twin-C, operating in sandy clay footing, registered drawbar pull of 65,900 lbs. in low-speed range.

Twin-C—Trademark TW-1039-G-b

LeTourneau-WESTINGHOUSE Company

Peoria, Illinois

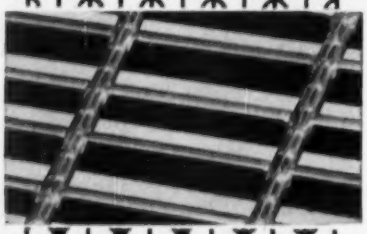
A Subsidiary of Westinghouse Air Brake Company

You Get
MORE THAN GRATING
When You
SPECIFY IRVING

YOU GET...
Over 50 years of engineering skill and production know-how from the FOUNDERS of the open-grid flooring industry.

YOU GET...
A "fitting" grating for every purpose.

YOU GET...
Riveted, pressure-locked and welded Irving gratings in steel; and Irving aluminum gratings in riveted and pressure-locked types, designed for your industrial flooring problems.



YOU GET...
Irving engineering procedures which assure precisely fabricated panels designed from your floor plan or sketch for quick, easy installation.

YOU GET...
Prompt delivery anywhere.

IRVING SUBWAY GRATING CO., INC.
ESTABLISHED 1902

OFFICES and PLANTS at
5063 27th St., Long Island City 1, N. Y.
1863 10th St., Oakland 20, California

. . . Airbase problem: Beat the weather

are waiting for the weather to break to permit full-scale construction. But (as of the end of April) icicles still hang from the teeth of sheepsfoot rollers, bulldozers sit in snowbanks, and a mixture of snow and mud hides the sites. To gain what advantage they can, the builders are spreading gravel over haul roads so they'll support equipment the minute the spring thaw arrives.

Climate is not the only hardship facing the base builders. There is the fact of sparse population, with attendant complications of labor and supply. In addition, both projects come under the new Air Force criteria that require a base to be located 7 to 15 miles from its supporting city. This means transforming over 5,000 acres of windswept prairie at each site into what will amount to a complete city for an anticipated personnel of about 100 officers and 700 airmen—plus some civilian workers.

Both the Minot and Grand Forks bases are similar in layout. Each has a single runway. At the end of the runway and its connected taxiway is an apron with alert hangar and readiness-crew building. Behind these are the maintenance shop, control tower, hangars, fuel storage, crash and fire station. Farther back are facilities that make the base self-supporting: the water storage, 700-man mess hall, cold storage building, 133-man dormitories, chapel, infirmary, recreation and club buildings.

All these facilities have a demanding standard of design criteria:

• **Paved areas**—Both bases, although designated for jet fighter use, are being built to multi-purpose standards. Paved areas used exclusively for jet fighters may be designed for 25,000-lb singlewheel loads. The Minot and Grand Forks paved areas are to be built to take a 100,000-lb gear load supported on a strut having dual wheels centered at 37½ in. Hangar floors are designed for an 80,000-lb gear load.

• **Expansion**—The Minot runway will be 8,100 ft long; the one at Grand Forks, 7,500 ft long. Both will be 150 ft wide and have connecting 75-ft taxiways. While lengths are ample for jet fighters, provision is being made so that runways can be lengthened at any time. Widening of runways to 200 ft also is anticipated. And a cross runway is in the thinking stage for both bases.

• **Building type**—Buildings will be permanent in type, in contrast to the 10-year-life facilities put up during World War II. Structures will be of masonry construction, some with steel roof framing. And, they'll reflect the climate, with vestibules, storm windows, beefed-up insulation and design against a 30 lb per sq ft snow load.

• **Utilities**—Plans are based on the theory that these are installations of permanent importance and growing size. Water capacity will be 355 gpm to serve an authorized population of 1,500 and a design population of more than 2,000 at each base. Ample capacity factors will be used in permanent roads as well as in curb, gutter and storm drainage facilities. The sewage system will be sized for a community of 6,000.

These requirements are about standard for such bases. It is from this point on that the Grand Forks and Minot projects present their own particular problems.

• **Utilities are a problem**—Water is one challenge. Fourteen-inch pipelines will stretch 13 miles from Minot and 14 miles from Grand Forks to supply the projects with municipal water. This is necessary because both bases are underlain by the huge saucer-shaped sandstone formation found beneath almost all of South Dakota and much of North Dakota. And this formation produces artesian water that is heavy with calcium, sulphides and chlorides.

Treatment costs promised to be so expensive that it was more economical to lay pipelines and contract for water with Minot, which gets its supply from the Souris River, and with Grand Forks, whose supply comes from the Red River of the North.

Other utilities will depart from run-of-the-mill base design, too.

Both bases will have high-temperature hot water systems. This system, which originated in Europe and has not yet been extensively adopted in the U. S., keeps water under pressure at about 425 deg for heating. It can be fueled either by lignite—and North Dakota has the world's largest supply of it—or by oil from nearby Williston basin.

Sewage treatment will employ the lagoon system, pioneered in North Dakota and now found in 43 communities. In practice, it is more efficient in that region than complete treatment of the conventional type.

• **Geology is a challenge**—Runway design is influenced by geology as well as climate. In a severe winter, North

"Great for finish work,"

says Superintendent for S. J. Groves & Sons

After S. J. Groves & Sons Co., Minneapolis, completed production earthmoving for 12½ miles of Indiana Turnpike near Howe, Ind., the company assigned five 7½-yard D Tournapulls to handle finish work. Mobile, 29.5 mph rubber-tired "D's" leveled sub-grade...hauled in fill for shoulders...hauled and spread topsoil for all shoulders and back-slopes...and leveled borrow pits.

When these photos were taken, two of the five Tournapulls were spreading 5-pay-yard loads of sand and gravel to build up shoulders near Route 9 interchange. Making round trips varying from 2000 feet to 3 miles, the two D Tournapulls each delivered an average of 80 loads a day, according to Russell A. Horn, Superintendent.

While two machines built up shoulders, the other three, with pusher assistance, leveled a borrow pit. Some of this leveling was done by Tournapulls with aprons raised and tailgates brought forward, to bulldoze material.

"D Tournapulls are great for finishing and all close work," says Superintendent Horn. "They have a good short-turning radius. Their maneuverability is tops."

"'D' maintenance much less"

Company officials are enthusiastic over the mechanical efficiency achieved by D Tournapulls. After 1400 hours of use, two of the "D's" are still running on original tires. Comparing "D's" with competitive scrapers, Superintendent Horn says, "Maintenance is much less on D Tournapulls." And Mr. Horn continues, "My operators like to run the 'D' better than the other small self-propelled scrapers on the job."

Advantages, praised by operators, include the "Ds" easier operation, precision in ditching, and stability under all working conditions. They like its easy steering, easy shifting . . . its stability in riding the side slopes.

Like S. J. Groves & Sons, you will find it pays to include fast, versatile D Tournapulls in your fleet. Their high-speed, their ability to self-load, and their job-to-job mobility make "D's" ideal for use on the smaller yardage assignments on big jobs, for clean-up on any type job, and for combination production with big scrapers in between special "D" applications. May we send you complete data and specifications?

"The 'D' is better on slopes and shoulders," says Operator Donald Morrison. After concrete is set, "D" can finish shoulders, compacting fill while it removes surplus material and redistributes it in low spots. Big low-pressure tires roll over new pavement without causing damage.

"In mud, you can maneuver easily with the Tournapull — not so with the competitive scraper on this job", says Operator Donald Morrison. In soft footing, Tournapull's power-transfer differential delivers more power to drive wheel on firmer ground, keeps machine moving where others bog down. H. A. Griffis was Project Manager for S. J. Groves; J. H. Healey, Paving Superintendent.

Tournapull—Trademark Reg. U.S. Pat. Off. DP-952-H-b

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HOW TO HANDLE
WET JOBS

96 IN. DIAMETER MAIN
FOR BETHLEHEM STEEL

Sparrows Point, Md.

Contractor: C. J. Langenfelder & Son

WELLPOINTS SPEED PROGRESS
TO 160 FT PER DAY

WITH ERRATIC SOIL conditions throughout the project, many problems beset the contractor installing this big steel waterline.

• Some of the tough ones fell to Griffin Wellpoint supervisors. Continual changes of soil formation demanded new solutions all the time, and made dewatering a constant obstacle race. Quick, accurate on-the-spot decisions gave the contractor dry trench—*fast*—thus enabling him to push the pipeline through 4½ miles of stubborn ground at the remarkable progress rate he achieved.

• Next time ground water gets in *your* way, it will pay you, too, to get in touch with Griffin.

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Hammond, Ind. Houston, Tex. Jacksonville, Fla.
In Canada: Construction Equipment Co., Ltd.
Toronto Montreal Halifax

. . . Airbase problem: Beat the weather

Dakota frost can penetrate the soil to a depth of six feet. Complicating this is the fact that Minot has a frost-susceptible soil.

To reduce subgrade weakening and pavement heave, runway design calls for a base and pavement thickness totaling 72 in. The lower portion of the 72-in. thickness will be replaced with a selected granular soil to guard against freezing and swelling. It will be topped with rigid and flexible pavement surfacing.

Runways and service roads of both bases will be perched well above the surrounding prairie. This will be done with the runways because it is cheaper to build them up than to excavate their full depth. Elevation of service roads follows the North Dakota Highway Department's practice of having raised roads and oversized ditches. Elevation enables the wind to blow heavy snow from the roads, while the large ditches provide a receptacle in which to catch it. Higher runways also are expected to help with the tremendous problem of snow removal.

One aspect of geology has turned out to be a favorable factor in construction at Grand Forks. This base lies within confines of old glacial Lake Agassiz. While the soil in most of the area is composed of clay-sized particles, the water action of the ancient lake formed off shore sand bars that are visible today as well defined north-south ridges. Army Engineers have taken advantage of one such ridge by placing the runway on top of it. Not only does this simplify the frost susceptibility problem, but elevation of the ridge takes care of transverse drainage.

• **Time is limited**—Tied in with all the other construction problems is that of speed. Every item currently under contract at the two bases has been labeled critical. The Air Force wants to start moving in at Minot in the last quarter of 1956; it is scheduled to begin taking over at Grand Forks during the first quarter of 1957.

The North Dakota construction season normally doesn't open much before April 1 and closes around October 15. To ease the tight schedule, Army Engineers have awarded the work as early as possible so contractors can line up materials in a supply-short period and have everything organized to go the minute weather permits.

In meeting this schedule, contractors at Minot are better off than those at Grand Forks. Work started last summer on the Minot runway and—on the books—is 57% completed.

These Are the Major Construction Contracts Awarded at Grand Forks:

- S. J. Groves & Sons Co., Minneapolis: $4,486,398 for paving of runway, taxiway and apron.
- McCormick-Erling Co., Paul Kempler, Delzer Construction Co., Tri-States Excavating Co., all of Fargo: $3,051,940 for utilities, roads and sewage treatment plant.
- Fred R. Comb Co., Minneapolis: $1,776,810 for operation buildings.
- Lovering Construction Co. and Otto J. Eickhof & Sons, Inc., St. Paul: $714,077 for housing.
- J. F. White Engineering Corp., Englewood, Colo.: $1,526,030 for central heating system and jet fuel storage facilities.
- Jayhawk Electrical Contractors, Topeka, Kansas: $153,900 for airfield lighting.
- Chicago Bridge & Iron Co., Chicago: $91,300 for elevated water tank.

These Are the Major Construction Contracts Awarded at Minot:

- Peter Kiewit Sons Co., Omaha: $3,665,970 for paving, grading and jet fuel storage; $1,645,466 for roads and utilities; $927,407 for airfield grading and paving.
- Lovering Construction Co. and Otto J. Eickhof & Sons, Inc., St. Paul: $819,997 for hangars and operations building.
- Lippert Bros., Inc., Boone, Iowa: $889,430 for dorms and mess buildings; $936,668 for Group 3 buildings including chapel, supply and issue, non-commissioned officers club.
- Charles Harris Co., St. Paul, Minn.: $1,298,290 for central heating plant and hot water distribution system, $708,238 for Group 2 buildings including officers club and quarters, infirmary, group headquarters, air police headquarters, general communications building; $622,825 for hot water distribution system.
- Power Engineering Co., Sioux City, Iowa: $178,700 for airfield lighting.
- Darby Products & Steel Plate Corp., Kansas City, Mo.: $87,858 for elevated water storage.

In addition, Minot contractors have built enclosures and are constructing foundations so that masonry can get under way as soon as the weather breaks. But at Grand Forks work has been limited to minor site clearing. This means that the runway contractor for that base will have to accomplish in one season what is being carried out in two at Minot.

• **Labor and logistics**—The problem of labor and materials supply is a major one. Military projects of this size are a new thing in North Dakota. And with only smaller jobs in the past, supply firms are not equipped to take the projects in stride. In addition—while there may be enough general labor to start work—manpower shortages are expected to develop when employment reaches its peak of 500 to 600 men at each job.

The dollar and cents consequence of labor and supply complications already has been reflected in bidding.

On military projects, bids that exceed the government's estimate by more than 15% are rejected ordinarily. But contractors interested in Minot and Grand Forks projects are basing bids on the expectation that skilled craftsmen will have to be imported for special jobs. This practice has brought in a large percentage of above-estimate bids, some running 35% over. As a result, the Omaha District Office of Army Engineers has thrown out more bids on the two bases than they have on all work advertised elsewhere in their area.

Kurke & Associates of Fargo, N. D., is architect-engineer on the Minot project. Forx-Stanley of Grand Forks, N. D., is architect-engineer for the Grand Forks Base.

John Day Dam Proposed Site Down to Two Possibilities

Army engineers have narrowed the proposed sites for John Day Dam from five locations to two on the Columbia River. Col. Myron Page Jr., Walla Walla, Wash., district engineers, says Scholfield Rapids and Indian Rapids are considered the best sites from an engineering standpoint.

Scholfield Rapids are below the John Day River and Indian Rapids, upstream. On a comparative analysis of the benefit-cost ratio, Colonel Page said the engineers favor the Scholfield site. The rock and foundation formations, however, require more study before a final decision.

Colonel Page said the Scholfield site also appears best from studies of navigation. Representatives of state and federal fish agencies have been asked to evaluate the fishery resources of the John Day River.

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• RUGGEDLY BUILT
• NON-CLOG IMPELLER

THE ECONOMICAL SEWAGE PUMP with the NON-CLOG impeller!

This WEIL Screenless Heavy Duty Non-Clogging Sewage Ejector is ruggedly built for years of trouble-free operation. WEIL Pumps of this design are still operating satisfactorily after 25 years of service.

This unit is completely factory assembled, economical to install — only one piping connection is required. Preassembly and factory testing insure LESS installation time and no "call-back" servicing.

Inherent in the design of this pump is an ample reserve of strength to meet the most severe conditions. The ease and simplicity of installation and the record of many years of trouble-free operation make this pump the logical choice with the engineer, contractor and owner.

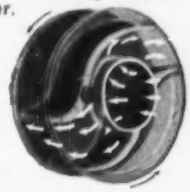

Fig. C-9001

This Two Blade NON-CLOG Impeller is the most important part of the screenless non-clog sewage pump. Not only does it effectively handle large diameter solids but it also passes rags and stringy material of various lengths which are washed into the sewage pit. Pumps with this impeller successfully handle difficult pumping jobs such as waste from public toilets, canning plants, hospitals and industrial installations.

Fig. C-9021

This rugged pump casing with wide waterways permits unobstructed passage of the maximum solids handled by a non-clog impeller.

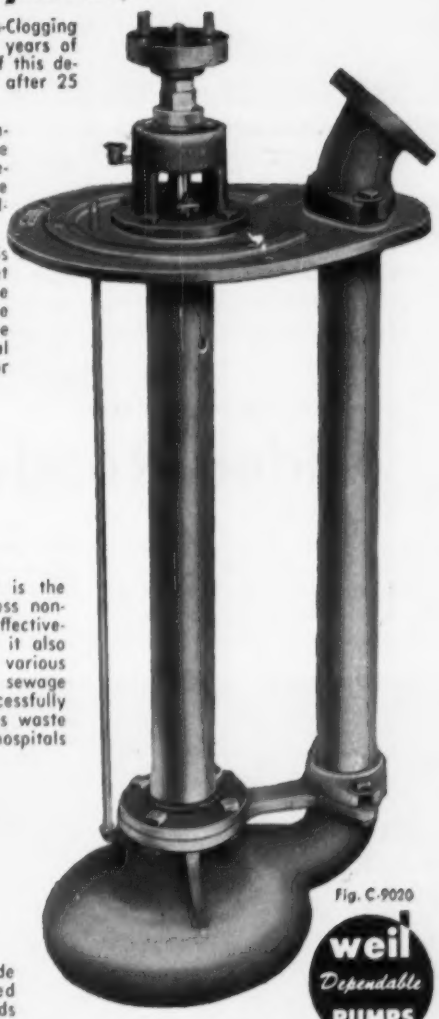

Fig. C-9020

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LATEST RENOVATION for a much-changed bridge will be new roadway (right).

New York's Queensboro Bridge:

A new upper deck roadway for this 50-year-old structure poses little difficulty. New approach ramps, however, call for intricate and confined construction

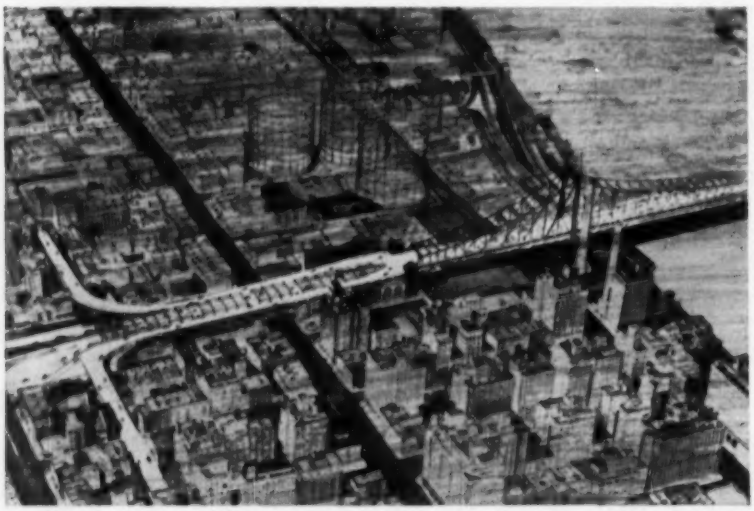
Added Roadway—A New Artery for

The peculiar steel riot of Victorian spires, towers and battlements that New Yorkers know as the Queensboro Bridge is now undergoing yet another renovation, so that it can accommodate still more of a kind of traffic hardly glimpsed when the structure was built more than 50 years ago.

A major landmark—both as a civic sight and an engineering peculiarity—the cantilever structure, 3,725 ft long overall is one of the world's busiest traffic arteries. With seven lanes now available on two decks, the bridge carries close to 40,000,000 vehicles a year (more than 100,000 a day), not counting shuttle trolleys, and a considerable pedestrian traffic. Two additional lanes, now being added on the upper deck, will raise this capacity by more than 30,000 vehicles daily.

Addition of the traffic lanes (in a space occupied until recently by elevated rapid-transit tracks) poses little difficulty, as far as the bridge structure itself is concerned. So heavily designed—to carry rapid-transit trains—is the structure that no major strengthening changes are needed.

The real problem is to install new approaches at the Manhattan (west) and Queens (east) ends of the bridge, to bring traffic down from the height of the upper deck to the surrounding city streets. The addition of the two extra lanes, with their approaches, will cost about $8 million.



MANHATTAN ACCESS—Construction of new ramp (upper angle) was a relatively simple job compared with Queens work. Ramp is trestle and earthfill structure.

• **Engineering oddity**—Still one of the world's longest cantilever structures,

an Old Giant

the Queensboro Bridge—originally known as Blackwell's Island Bridge—was the center of a furious technical debate over its safety during the six years it was under construction.

The bridge is an engineering oddity in that its long cantilever spans (the longest: 1,182 ft) are discontinuous trusses, connected directly to each other by pendulum or rocker-arms, with no suspended span. With the tragic collapse of the Quebec Bridge fresh in their minds, engineers were much concerned that calculations of stresses in such a truss be accurate.

Very particularly, they were concerned with the enormous weight of the bridge—more than 50,000 tons of nickel-steel in the superstructure alone—and with what they foresaw as greatly increasing live loadings to come. These live loadings took little account of motor traffic—the original design in 1903 called only for a 32-ft roadway. But provisions were made for four trolley tracks on the lower level, and four subway or elevated tracks on the upper level.

After long debate, Gustave Lindenthal, then the city's commissioner of bridges, determined on a design that provided for a "normal" live load of 8,000 lb per lineal foot, with capacity for a "congested" live load of 16,000 lb. By comparison, the Oakland Bay bridge was designed in 1935 for a normal live load of 7,000 lb per lin ft.

• **Motor traffic takes over**—But the bridge never carried the full rapid-transit design loading. The motor vehicle took over too rapidly.

By 1915—six years after the formal opening—Engineering News reported that daily traffic had reached an average of nearly 10,000 vehicles (of which only 1,710 were horse-drawn), and plans were already afoot for widening the roadways and eliminating two trolley tracks on the lower level and two elevated tracks on the upper level.

A number of other changes have been made over the years, until at present the full 52 ft width of the lower deck is available for five traffic lanes (the center lane being reversible through the use of traffic lights to accommodate heavy peak traffic flows into and out of the city); and the upper deck provides a two-lane, one-direction pavement, 22 ft wide.

• **Addition needed**—Despite changes, traffic conditions on the bridge became more and more intolerable, and by 1948, the city's Department of Public Works asked a New York consulting firm—Parsons, Brinckerhoff, Hall & MacDonald—to prepare plans for increasing the traffic capacity and for facilitating flow of traffic away from the bridge at its terminals.

The rapid growth of the city on both ends of the structure had provided further complications. Construction of a three-level elevated transit structure at Queens Plaza, extension of the BMT subway from its under-river tunnel at the bridge site to connect into the elevated structure, other subway work and a complex of trolley and bus lines and industrial plants had made Queens Plaza a maddening, difficult maze for motorists. On the Manhattan side, the

QUEENS ACCESS—Approaches here entailed more involved construction: new ramp passes beneath existing one and executes a 360 deg turn.

. . . A new artery

solid urban construction, seemed to preclude alleviation of the situation.

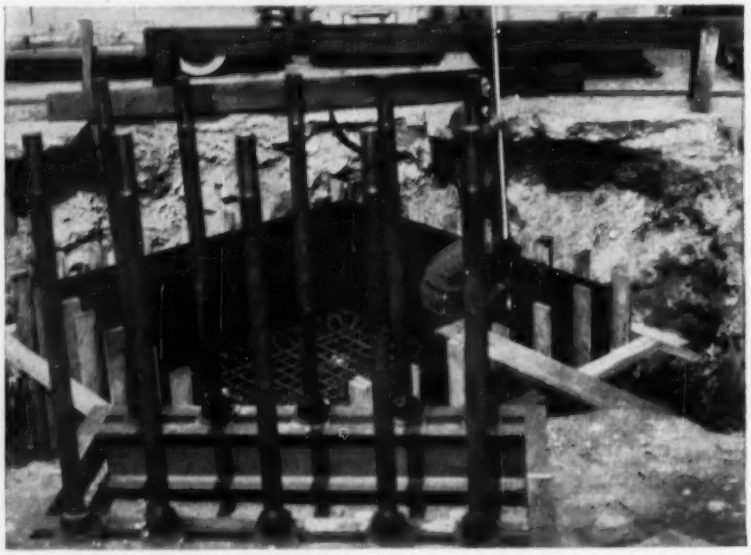
Further, a mid-bridge elevator connection to a city-owned hospital on Welfare (formerly Blackwell's) Island caused periodic traffic delays.

The engineers, late in 1948, in collaboration with the Department of Public Works, proposed additions of a second two-lane trafficway on the upper deck (on the north side of the bridge, where the elevated tracks had since been removed), and a series of ramps on the Queens side—partly to correct alignment of the one existing ramp to the upper deck, and partly to bring traffic to the new lanes. On the Manhattan side, a new ramp running northward from the bridge was suggested to clear upper-deck traffic, and an elaborate plaza was to be cleared to provide better access.

The traffic delays caused by the mid-bridge connection to Welfare Island have since been overcome by construction of a new bridge from the Queens shore.

After several years of study, the general plan was approved, except the construction of the Manhattan plaza.

TIGHT GOING everywhere. Truck crane digs footings for new ramp, in quarters cramped by old ramp (upper left), a two-level elevated transit structure.



ANCHOR BOLTS for columns supporting new ramp are placed in these fabricated units, to insure accurate spacing, firm grip. For accurate placing, contractor spot-welds a frame around top of bolts, slips planks under this brace, and hangs whole assembly over edge of forms.

• **Work under way**—Under three general contracts, work is now in progress.

Simplest part of the job—from a construction viewpoint, at least—is the work on the bridge itself. Because of the great strength of the cantilever spans, no major structural changes are required.

All that's needed is to install two lines of steel I-beams as stringers between existing beams, to provide added support for a 3-in. armored steel deck, which will be a patented steel grating, filled with concrete.

Construction difficulty is mostly with working amid the traffic on the lower deck, which trucks must use to deliver the needed steel; and in the very small clearance on the upper deck (13½ ft) for operation of a crane lifting beams into position. Peerless Construction Co. of New York City, which holds the $1.3 million contract for this part of the job, has met these problems by (1) scheduling steel and material deliveries for mid-morning and mid-afternoon, and (2) making use of a special 3-ton crane, mounted on a six-wheeled truck body, which was originally built for field use to repair damaged Army tanks.

The existing roadway on the upper deck will be widened slightly (to 24 ft), and a 2 ft-6 in.-wide median strip will be installed.

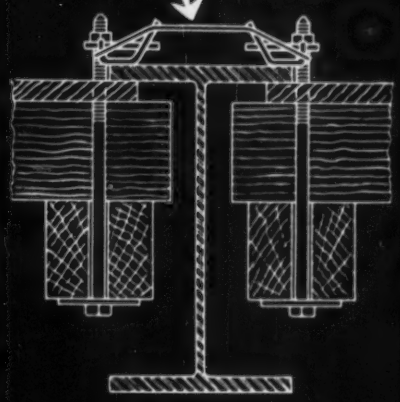
• **Access, west side**—On the Manhattan end of the bridge, a new access ramp is being provided to get cars off the new upper roadway.

The new ramp will leave the bridge at nearly right angles, plunge through the center of two blocks of run-down tenements, and come to earth at 62nd Street, to the north of the bridge. A new street, to take traffic from 62nd to 63rd Street at grade also will be built. A total of 17 buildings were demolished to make room for this construction.

This ramp will be a steel supported trestle as it bridges 60th Street (immediately north of the bridge) and 61st Street, then becomes an earthfill ramp down to street level.

A ramp entering the existing south

Faster Adjustment from TOP of Deck



TOTAL SAFE LOAD ON BOTH COIL BOLTS IS 10,000 LBS., OR 5,000 LBS. PER BOLT

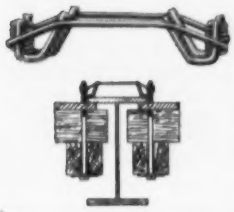
..WHEN HANGING FORMS WITH

SUPERIOR PLATE HANGER FRAMES

With Superior Plate Hanger Frames the installation and necessary adjustment to bring the deck forms tight against the flange are from *above* the deck. Coil Bolts are passed through and secured from above with coil nuts. Bolts are easily removed without binding because, (1) nuts are square and will not turn; (2) embedment of the bolts in the concrete is at a minimum since the plate is only ½" above the flange.

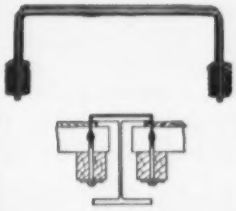
FOUR OTHER SUPERIOR WAYS TO HANG FORMS FROM STEEL BEAMS AND GIRDERS ON BRIDGE SUPERSTRUCTURES

STANDARD COIL HANGER FRAME



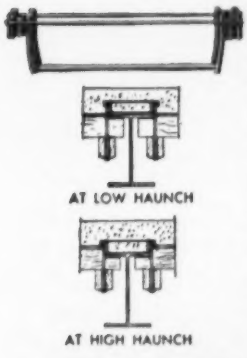
When hanging forms where specifications do not permit any hanger wire to be exposed after stripping, use Superior *Standard* Hanger Frames. Detail at left shows their use with double ledgers, ½" coil bolts, and flat washers. Total safe load on both bolts for Type 10M is 10,000 lbs., or 5,000 lbs. per bolt. For Type 6M, total safe load on both bolts is 6,000 lbs., or 3,000 lbs. per bolt.

COIL BEAM SADDLE



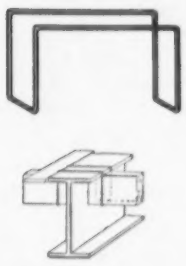
On jobs where hanger wires may be cut after stripping the forms, use Superior Coil Beam Saddles. The Coil Bolts allow for any variation in lumber and flange thickness and tightening the bolts pulls the forms tightly against the flanges. Forms are easily stripped. Safe load is 6,000 lbs. per saddle, or 3,000 lbs. for each ½" Coil Bolt. Coil Beam Saddles are also furnished for ¾" and 1" bolts.

SPECIAL HANGER FRAME



The design of certain bridge superstructures allows for the permanent deflection of the beams or girders due to the pre-calculated dead load. This deflection is compensated by a concrete haunch of varying depth on the upper flange. Superior *Special* Coil Hanger Frames were developed to meet this field condition, at the same time avoiding any exposed hanger wire. The extent to which the ½" coil Bolts are threaded into the coils allows for these varying haunch depths from maximum to zero. (See detail). Total safe load per frame is 10,000 lbs., or 5,000 lbs. per ½" bolt.

WIRE BEAM SADDLE



Wire Beam Saddles are used to hang centering joists from structural steel beams when the beams are not fireproofed with concrete. On non-fireproofed structures the load is determined by the allowable spacing of centering joists rather than the capacity of the hanger. Available in three gauges and sizes as required. Will carry safely, total loads of 2,500 lbs. to 6,000 lbs. Layouts and estimates will be sent upon receipt of plans or quantities. No obligation.

WORKING PARTS (Bolts and washers) are returnable. Layouts and estimates for Superior Hangers are available without obligation.

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First, there's extra strength and safety because of Naylor's exclusive spiral truss which acts as a continuous expansion joint to absorb shock loads, stresses and strains. Next, there's greater collapse strength that lets you use Naylor on both vacuum and pressure. Also, this distinctive structure maintains its true cylindrical form and holds diameter accurately.

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upper roadway from the mid-block between First and Second avenues at 57th Street will remain in service.

Woodcrest Construction Co. of New York City holds a $1.2 million general contract for the ramp on the Manhattan side.

• **Access, east side**—On the Queens (east) side, however, is the more involved construction job. Here Terry Contracting Corp. holds a $5.3 million general contract that includes: Doubling the 22 ft width of an existing elevated roadway that stretches from Thompson Ave. (actually a bridge across the 22-track Long Island Railroad yards) for a distance of 1,900 ft to a junction with the existing ramp as it comes down from the present upper-deck roadway; reconstruction of parts of the existing ramp to ease right-angle turns; and construct a new, 1,100 ft long ramp that will start from the north side of the old bridge at 21st St., duck under the main bridge deck and swing in a 360-deg arc as a second deck over the existing ramp to feed the new upper deck roadway. Another ramp about 500 ft long, starting south of the main bridge, will connect to this new ramp.

The job will involve paving a total of 14,000 ft of new roadway; use of some 10,000 tons of steel; placing of 31,000 lin ft of piling and 5,000 cu yd of fill; and placing of 3,000 sq. yd of granite block and asphalt paving as repairs to streets that must be torn up to accommodate the new work.

Typical of big-city work, biggest problem for Terry is not so much the actual erection of steel or putting down supports for the new ramps, but the problem of working in and around, over and under the maze of utilities, subway, elevated and surface transportation lines and other obstacles. Work on some sections—as removal and replacement of some of the supports of the elevated transit structure—can be done only at certain hours on Sundays when traffic is light. And in every case, the close clearances for equipment, the danger of damaging abutting industrial property, and the need to keep vehicular traffic flowing is paramount.

The work is being done under the supervision of the city's Department of Public Works, of which Frederick H. Zurmuhlen is commissioner. Samuel Cooper is director of the department's Division of Bridges, and E. I. Judd is chief of the Bureau of Bridge Construction. M. N. Quade was partner-in-charge and Richard S. M. Lee was project engineer for the consulting engineers, and Samuel Mandeberg is resident engineer for the department.

SIDES, ENDS, AND DOORS of these hoppers are made from USS "T-1" Steel plate (½" thick in sides and ends; ¾" thick for doors). "T-1" was sheared, punched, and welded without difficulty.

60 ORE CARS FOR INTERNATIONAL NICKEL CO. BUILT WITH USS "T-1" STEEL

Unique 3-way superiority of "T-1" Steel dictated choice

Copper and nickel ores are extremely hard and abrasive. Nevertheless, ore cars must last a long time. They must withstand severe corrosion, tremendous impact and abuse, day after day, for years. In the cold belt of northern Ontario, they must stay tough and durable, be able to take tremendous abuse, even at sub-zero temperatures.

The one steel that fills *all* these requirements, at the lowest cost for top performance, is USS "T-1" Steel. So International Nickel Company of Canada specified USS "T-1" for 60 new ore cars, built by Canadian Car and Foundry Company, Limited, for use in the largest nickel mining operations in the world, in the Sudbury District, Ontario.

In these cars, USS "T-1" Steel, which has a yield strength of 90,000 psi, plus amazing ability to withstand impact at low temperatures, is expected to increase service life substantially over cars made of carbon steel. Its far greater strength and toughness and ability to withstand abrasion should materially reduce maintenance and the need for part replacement. Result: more continuous operation and lower costs.

WHERE CAN YOU USE USS "T-1"?

Look around *your* operation. If you are in the mining business, or if you're in the business of building equipment for mines, USS "T-1" has a place. In many mines today, USS "T-1" is lengthening service life, reducing weight and cost, simplifying fabrication, increasing capacity of rugged mining equipment. It can do the same for you. Write for details. Or wire, or phone. United States Steel, Room 5336, Pittsburgh 30, Pa.

UNITED STATES STEEL CORPORATION, PITTSBURGH • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS "T-1" CONSTRUCTIONAL ALLOY STEEL

USS

UNITED STATES STEEL

MANITOWOC faster cycle speed moves more dirt

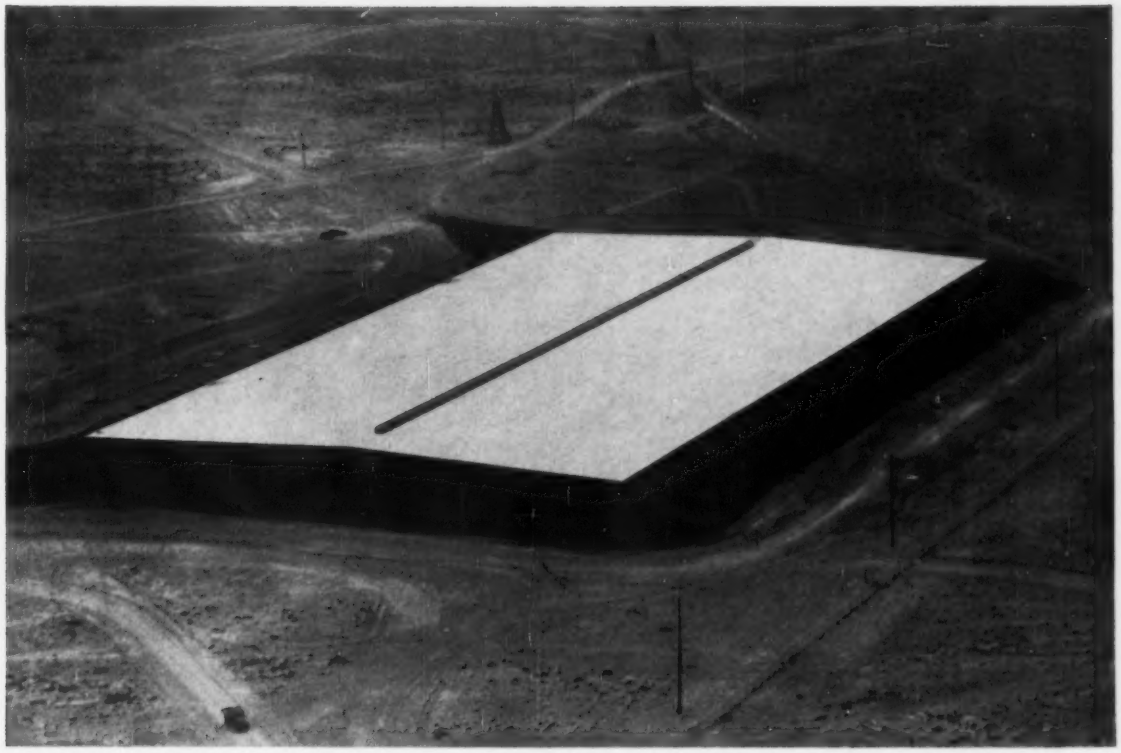
Leveling ground at a Staten Island borrow pit recently, contractor Peter Juzefyk, Elizabeth, N. J. excavated approximately 100,000 yards of gravel fill to complete the job. Juzefyk averaged 2 minutes – 50 seconds time to load 16-yd. haul units with his Manitowoc Model 2000 1¼-yd. shovel. Total loading time often included a move to place the shovel in a better digging position! As much as 2100 yards was removed from the site in one 9 hour shift.

Why MANITOWOC 2000 does a faster job

FULL USE OF POWER speeds digging. Only 13 gears and pinions make more power available at all times to add horsepower at the dipper (only working gears turn). SMOOTH, DISC-TYPE CLUTCHES speed operation — make control extremely precise. As easily adjustable as automobile-type clutches. SIMPLICITY OF DESIGN and smooth operation greatly add to cycle speed. Sliding pinion arrangement uses just one set of clutches to travel, swing and boom hoist. FAST TRAVEL with extra push for grades up to 30%. Positive steering utilizes either crawler, forward or back. Rugged, simple crawler base has balanced stability needed for digging on uneven terrain. EASILY CONVERTIBLE in the field to crane, dragline and trench hoe operation — whatever front end the job demands.

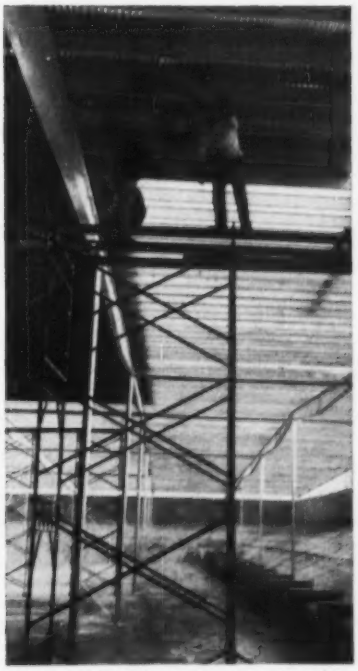
MANITOWOC
SHOVELS 1-5½ YD. Speed Crane CRANES 20-100 TON

On your next bid let Manitowoc speed and power help cinch the deal. Contact your helpful Manitowoc distributor for the full, profitable story.



ALUMINUM shields 30,000,000 gallons of precious water from hot sun and desert dust for the Las Vegas Valley Water District.

Putting a Sunshade on Five Acres of Water



ROOF FRAMING is simple purlin-girder system carried on pipe columns and carrying corrugated aluminum sheet. Structure is vented along sides and ridge.

Five and a quarter acres of aluminum sheeting protect precious stored water from the hot desert sun near Las Vegas, Nev.

A covering was specified for the Las Vegas Valley Water District's new 30-mg Charleston Heights Reservoir to keep out dust and sunlight. It cuts evaporation and eliminates growth of algae, cutting down the amount of chemical treatment necessary, according to William C. Renshaw, general manager of the water district.

Aluminum was chosen for its heat reflecting qualities, its resistance to corrosion, which made painting unnecessary, and its light weight.

The reservoir is of the earth embankment type with an asphalt lining. It is divided into two basins of equal size, 336 ft square. Total area covered is 229,500 sq ft.

Roofing is standard corrugated aluminum sheets, .024 ga, 48 in. wide and in 8- and 10-ft lengths.

The cover is designed to withstand wind loads of 12 psf. Aluminum sheets were fastened to 6½-in. galvanized steel I-beam purlins with nails having neoprene washers under their heads. End laps were sealed with mastic.

Purlins are spaced on 36-in. centers and span 26 ft between tapered steel girders. The girders are supported by 4- and 6-in. steel pipe columns.

Aluminum sheeting was used to cover a 600-ft monitor type ridge vent running the length of the reservoir. The structure is also vented by continuous 12-in. eave vents on two sides.

Prime contractor for the cover was Lembke-Clough and King of Las Vegas. The aluminum was supplied by Kaiser Aluminum and applied by Taylor Steel Company, Las Vegas.

The $617,000 reservoir is part of the Las Vegas Valley Water District's current $5.5-million program to add 14 mgd to the district's former water supply of 21 mgd. Prior to the new system, Las Vegas was wholly dependent upon well water and had a storage capacity of 4 mg, or only about four hours' supply on a peak day.

Under the new system, water is pumped from Lake Mead, a distance of 25 miles and a lift of approximately 1,000 ft, to the reservoir.

The new water supply system, including the reservoir, was designed by James K. Montgomery, consulting engineer, of Pasadena, Calif., R. C. Kenmir is chief engineer for the firm, and Harwood Jones was resident engineer throughout construction.

Peruvian Roads

Peru pushes construction on Pan American highway

Marking what local officials have called a new era in highway construction for the country, Peruvian Minister of Public Works Roberto Dianderas last month opened a new steel suspension bridge over the Maranon River at Corral Quemado.

The structure is a vital link in the projected Trans-Andean Highway from Olmos, part of the northern section of the Pan American Highway in Peru, to a point of steamer navigation on the Maranon, below the rapids.

The Corral Quemado suspension bridge, built at a cost of about $500,000 during the past three years, is 720 ft long, and carries a 26.5-ft-wide roadway. The structure was erected under the direction of Walter Kasimir who built the Aguaytia suspension bridge on the Central Trans-Andean Highway. Labor was provided by a battalion of men from the engineering corps of the Peruvian Army, and civilian workers.

Opening of the bridge is a part of a long-term highway program now being carried out in Peru under terms of a $5-million loan made a year ago by the International Bank for Reconstruction and Development. Having no integrated railroad system, Peru is largely dependent on highways as a means of transport, and the highway system provides the only link between some of the principal regions.

Under provisions of a contract with the Bank, the firm of Michael Baker, Jr., Inc., of Rochester, Pa. has been engaged as engineering consultants by the Peruvian Government.

A group of Baker engineers arrived in Peru in September a year ago under the direction of John A. Robinson, project engineer. This group has now completed two reports submitted to the Ministry of Development and Public Works, one dealing with highway maintenance and the other a detailed report of an all-weather highway from the Aguaytia River to Pucallpa, the easternmost end of the Trans-Andean Highway. Construction cost for this road is estimated at $7.1 million.

Contractors to Finance Public Works

A system of delayed payments to contractors on public works projects has been adopted by the Venezuelan government which shifts the burden of financing construction operations to the contractors.

A budget report submitted to the Venezuelan congress by the Minister of Finance says the policy is aimed at "financing public works by private contractors out of their own resources".

This statement is, in fact, official recognition of a traditionally slow pattern of payments by government agencies to builders, some of whom have been hard pressed for working capital.

An example of how the policy works is contained in a call for bids on earth moving for the Tiro al Blanco housing project of the Banco Obrero (Workers Bank) Caracas.

The Banco Obrero, a government housing agency, says in its announcement that 20% of the contract total will be paid in cash when the job is finished. Another 10% will be paid at the end of six months. Of the remainder, 20% will be paid in notes falling due Jan. 31, 1957, and 50% in notes due the following July 31.

Thus the contractor will have to wait more than a year for full payment, or discount the notes at possibly unfavorable rates.

As a solution to the problem, the construction industry has asked the government to consider a system whereby the Venezuelan government would guarantee loans by U. S. banks to contractors on public works projects. The loans would be repaid directly by the government out of appropriations for the projects.

The Minister of Finance stressed in his report that the question of financing construction operations is being considered apart from proposals for large-scale loans from abroad for Venezuela's ambitious public works program, at present paid for largely out of current revenues.

U. S. banks have reportedly offered substantial credits to be repaid out of the government's income from petroleum royalties.

A continuation of heavy public works spending in the 1956-57 fiscal year is promised in the budget report. The budget is a record $801 million, up $36 million from the current year ending June 30. And big supplemental appropriations for "extraordinary" projects are foreshadowed by a surplus of $105 million expected this year.

Additional appropriations out of previous surplus income amounted to $129 million in the first three quarters of the present fiscal year, with nearly all of the extra funds going for public works.

Tanker-Serving Lake Island To Be Built in Venezuela

Creole Petroleum Co. has started construction of an island in Lake Maracaibo, Venezuela to serve as a terminal for ocean-going tankers.

Facilities on the 135-acre island will include two docks, and tank storage capacity for 3,144,000 bbl of oil. Cost of the project is $15 million.

Pipelines and electric cables are being cleared from the lake bottom preparatory to actual construction. The island will be created by pumping 6,500,000 cu yd of silt into an area enclosed by pilings and slabs of concrete to be cast in Creole's La Salina casting yard.

When finished, the island will be 3,000 ft long and 2,000 ft wide, with two concrete docks each 1,150 ft in length and 79 ft in width. Tankers up to 60,000 tons will approach the island through a channel to be dredged to a depth of 36 ft.

Contractors are Raymond Concrete Pile Co. of Venezuela and Brown & Root and Gahagan Overseas Construction Co. Designer was Jose Sanabria.

World Bank to Help Finance Highway Program for Haiti

Haiti has received a loan of over $2 million from the Wold Bank to help finance a three-year highway plan. Under the program, 725 mi of primary and secondary roads would be repaired out of 1,874 mi of roads in the country. Only 325 mi of existing roads are hard-surfaced.

Estimated at $3.98 million, rehabilitation of the highways will include improvements of the base, surfacing, shoulders, bridges and culverts; widening and new alignment will be undertaken where necessary. The program will be carried out by the Public Works Department and consulting engineers to be engaged from abroad by the Haitian Government. The Royal Bank of Canada is participating to the extent of $413,000, representing the first three maturities that fall due from mid-1959 through mid-1960.

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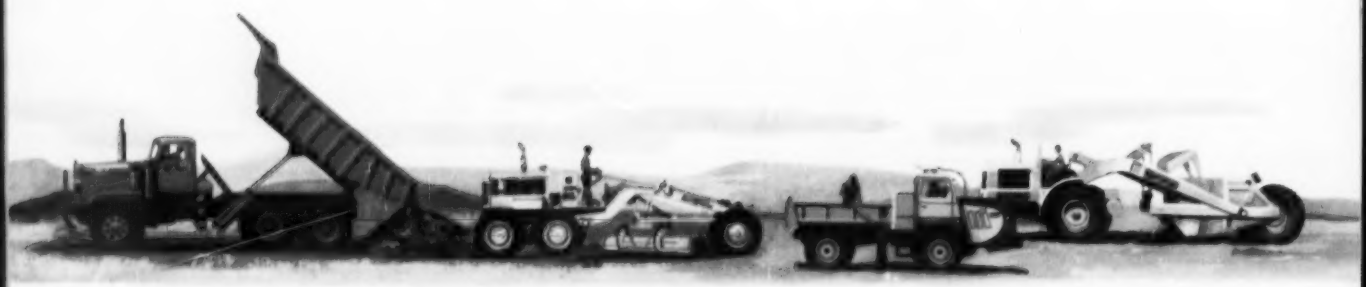
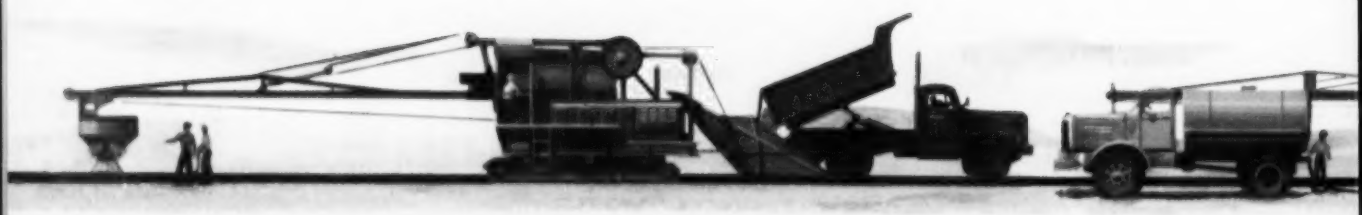
for more profit in road building

OSHKOSH EIMCO BUCYRUS-ERIE DART



MACK off-highway ADAMS WALTER WOOLDRIDGE

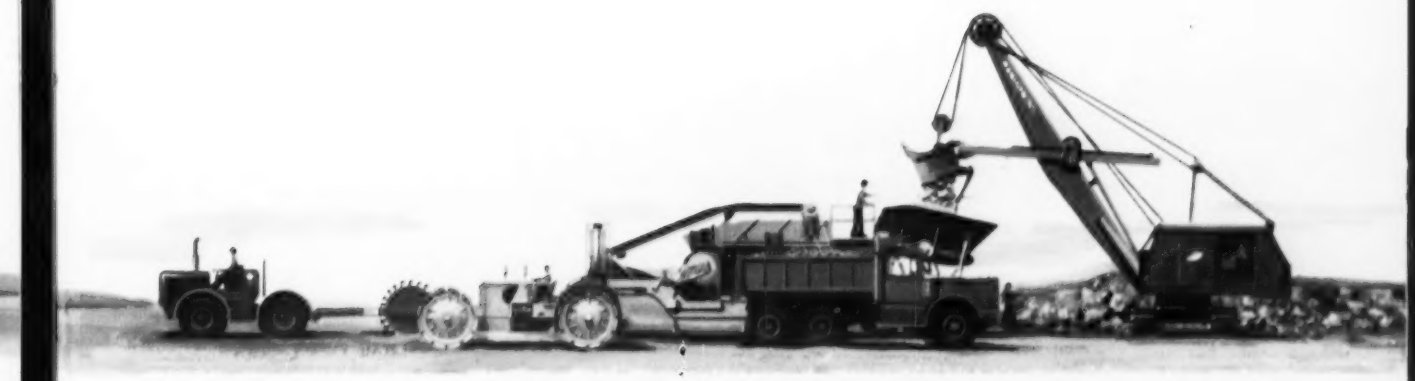


WORTHINGTON WHITE FOUR WHEEL DRIVE

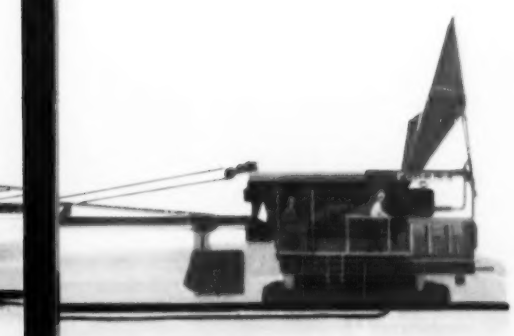
In every phase of highway construction, from the first earth-moving . . . through base work . . . to the paved finish, there's more profit for you when you standardize on Cummins Diesels. Cummins rugged, high horsepower design and Cummins advanced diesel features assure you of top performance and top equipment availability . . . top profit from all of your machines.

The 56 pieces of equipment shown on this and the following pages use Cummins Diesels as standard or optional power. Complete details on other models (over 40 leading manufacturers of construction equipment offer Cummins Diesels in 240 models) are available at your nearest equipment dealer or Cummins distributor.

LE TOURNEAU-WESTINGHOUSE EUCLID INTERNATIONAL



WAGNER BUFFALO-SPRINGFIELD CEDARAPIDS AUTOCAR MANITOWOC



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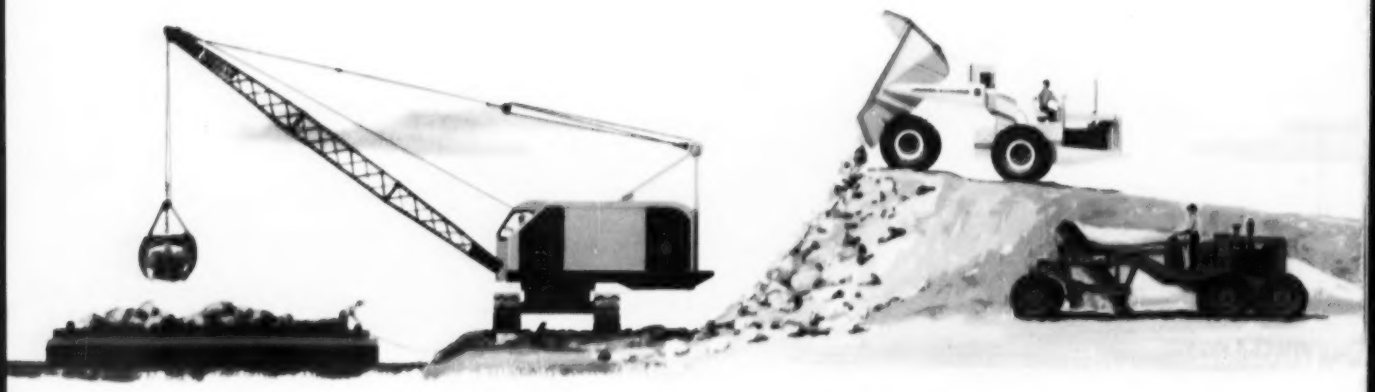
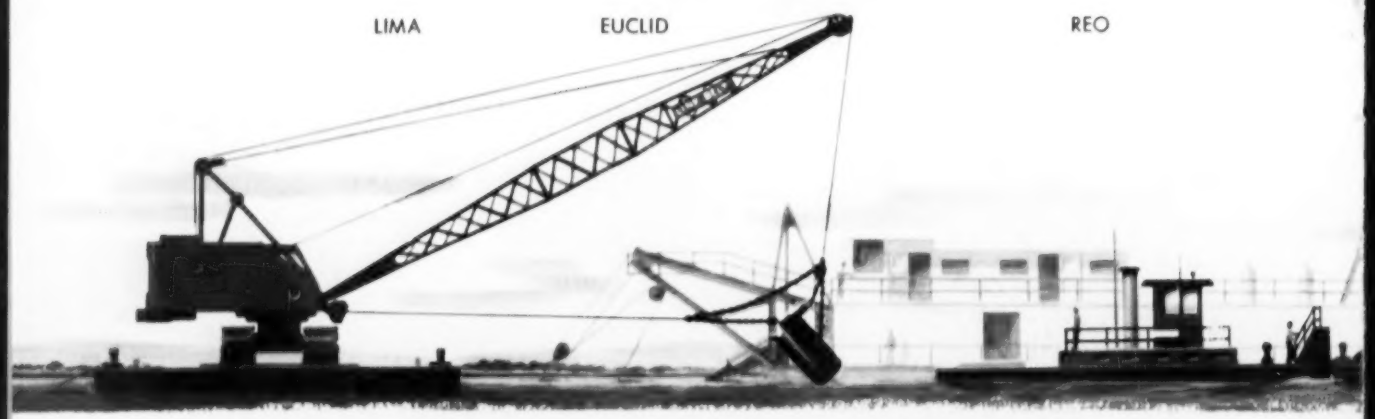


AMERICAN LE TOURNEAU-WESTINGHOUSE GALION

LIMA EUCLID REO



LINK-BELT SPEEDER CUMMINS powered workboat and dredge

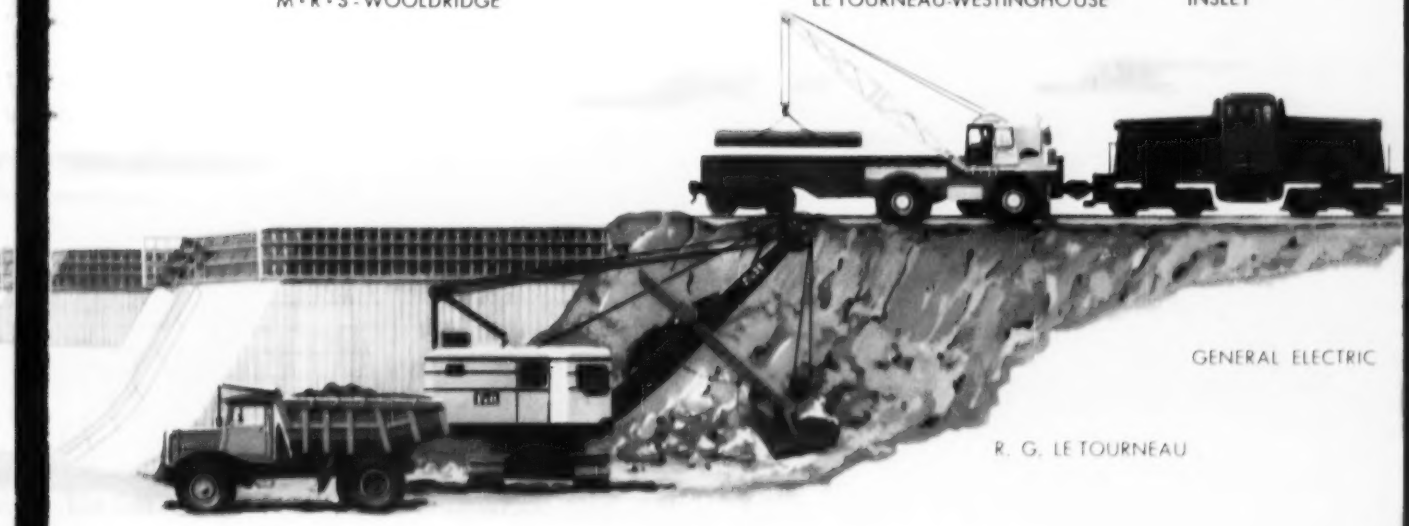
Today, you can get a Cummins Diesel for every type of equipment you're likely to use in building a levee . . . dam . . . or waterway. From the lightest to the heaviest work, Cummins Diesels make your job more profitable.

On jobs when a downtime hour can mean thousands of dollars lost, more and more contractors are finding they can count on Cummins for dependable day-in, day-out operation with minimum downtime . . . maximum trouble-free performance.

M • R • S - WOOLDRIDGE

LE TOURNEAU-WESTINGHOUSE

INSLEY

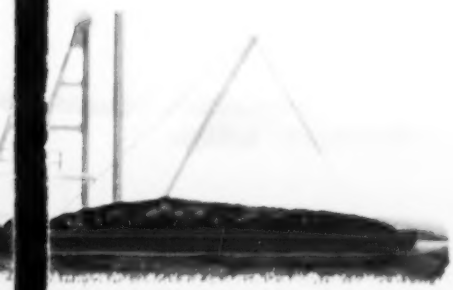


GENERAL ELECTRIC

R. G. LE TOURNEAU

KENWORTH

P&H



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for more profit in general construction

BAY CITY DIAMOND T KOEHRING HAYES

DOMINION INTERNATIONAL INDUSTRIAL BROWNHOIST

CUMMINS generator set EIMCO PACIFIC WORTHINGTON

It's also true that you now can have a Cummins Diesel for every phase of excavation work, building construction, and tunnel work. Here's the rugged, dependable power construction men can rely on . . . from the first bite of a shovel to the completed skyscraper.

Cummins Diesels deliver the most where the work is the roughest. The proven performance, dependability and economy of Cummins Diesels completes your job faster and more profitably.

MARION CUMMINS powered pump DART LIMA COOK

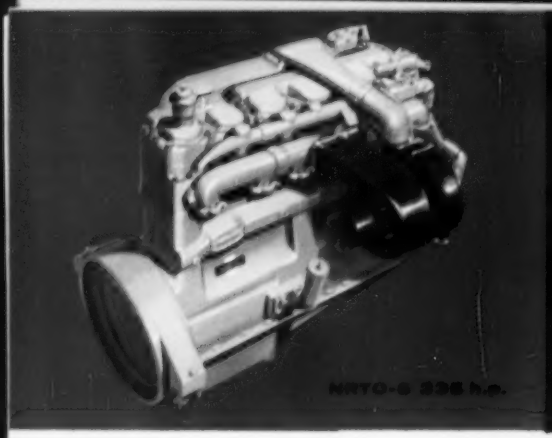
PETTIBONE-HAISS PETERBILT AMERICAN

on any construction job

CUMMINS *MORE PROFIT*

gives you the big plus

Industrial Locomotives by —
BALDWIN-LIMA-HAMILTON,
PLYMOUTH, VULCAN



HERE'S WHY CUMMINS DIESELS DELIVER MORE PROFIT

Twenty-four basic Cummins engines: Over 150 models let you match power to every individual job. You avoid the excessive maintenance and fuel costs which result from underpowering . . the excessive initial cost of overpowering.

Full power range of Turbodiesels: The Cummins line now includes five new *TURBODIESELS*—175 to 600 h.p.—that deliver big power in a lightweight, compact package. The unique feature of these new *TURBODIESELS* is Cummins Turbocharging. Exhaust gas energy—normally wasted—supercharges the engines without adding any mechanical parasitic load!

Greater power availability: Cummins Diesels have the newest and finest dirt-protection features in the industry. Cummins basic engine design has the proven superiority of 4-cycle operation. Durable, high-strength metals and alloys such as Stellite valve faces and valve seats and camground pistons, cut scheduled repairs and unscheduled downtime to a minimum.

Simplest fuel system: Cummins exclusive PT fuel system meters fuel simply and accurately . . . needs no constant adjusting. It eliminates fuel racks, check valves, injection valves . . . and is the simplest diesel fuel system available today. It is far easier to understand and service than any other diesel or gasoline fuel system and is standard equipment on all models.

Reduced parts inventories: Bearings, pistons and many other parts are interchangeable on many Cummins models. This standardization reduces overhead in parts stock . . . assures time and space savings . . . lowers maintenance costs. All components are made to exacting engineering standards under strict quality control to guarantee uniformity—lower your over-all maintenance costs.

Expert service help when you need it: Cummins worldwide distributor organization—the largest devoted exclusively to the sale and service of diesel engines—makes service and parts readily available at nearly 200 maintenance points in the United States and Canada (and in over 100 export locations, too). Job-site availability of parts and service is also offered by Cummins Distributors.

Get more information on the manufacturers who offer Cummins Diesel power! Mail the coupon at the bottom of this page.

Cummins Engine Company, Inc.

Columbus, Indiana

MAIL THIS COUPON TODAY TO ABOVE ADDRESS

I am interested in finding out more about the advantages of Cummins Diesels.

_____ Send me, free of charge, a copy of "Cummins Who's Who"—a complete directory of equipment manufacturers offering Cummins Diesels in their machines.

_____ Send me, free of charge, the booklet, "Answers to Questions about Diesels"—an easy-to-understand explanation of how diesel engines operate.

_____ Have a Cummins representative call on me concerning my equipment requirements.

CUMMINS gives you the big plus MORE PROFIT

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Bulletin 950134 LITHO U.S.A.

Flame-Cutting, Pipe-Beveling Machine Is Made Portable

A portable flame-cutting and pipe-beveling machine for small-diameter pipe (1½-in. to 4-in.) has been developed on the same design principle as larger models previously available. Weighing only 7½ lb, the machine is easily handled and can be operated efficiently by unskilled users.

Using the same split-gear horseshoe principle of the company's units for pipe up to 36 in., the cutter can be placed over continuous pipe at any point. It can be adapted to fit various pipe diameters within its range by mere replacement of adapters, identified for pipe sizes.

At Yorktown, Tex., a 20-mi pipeline was recently taken up, reconditioned, and rebeveled. The project involved over 100,000 ft of 2-in. and 3-in. pipe to be cut into 40-ft lengths. There were 2,700 joints to be cut with two bevels at each joint. The contractor completed 5,500 bevels in ten 9-hr days, using unskilled operators on

the job. He reported as many as 660 cuts in one day by a single machine. H & M Pipe Beveling Machine Co., Tulsa, Okla.

Low-Temperature Insulation Needs No Bands, Staples, Wire

A low-temperature pipe-insulating material, which can be wrapped around pipelines, with adhesive to seal the lap, eliminates the need for bands, staples or wire. Called LT Cork Covering, the new-type material consists of segments of corkboard fastened to a backing of asbestos and aluminum laminated paper.

According to the manufacturer, the new insulation cuts installation time and does away with the danger of puncturing the laminated-paper vapor barrier.

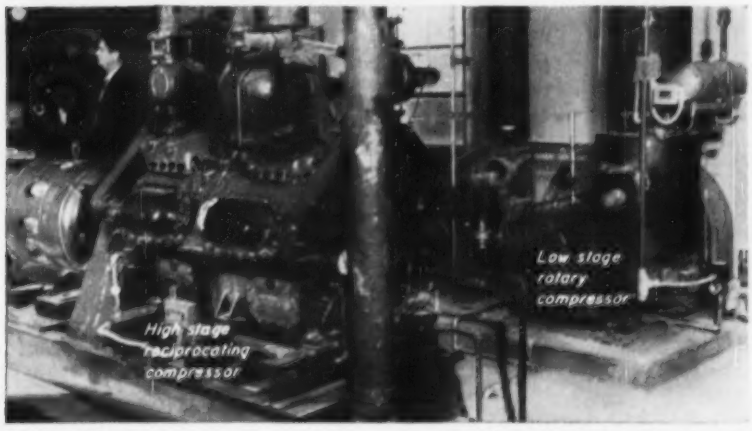
In addition, the cork covering can

Cold-Climate Heat Pump Makes Debut

The York Corp. has applied for patents on a heat pump said to be capable of heating a building economically by extracting heat from outside air even at below-freezing temperatures. The same equipment also cools the building during the summer.

Electrically operated, the system depends on compound compression to raise efficiency at low outdoor temperatures. The heat pump removes heat from the frigid outside air by passing it over coils that cool it to still lower temperatures. This heat, taken from the outside air by a refrigerant, is then elevated to a usable temperature level by the compression cycle. Heat can be used to produce hot water (circulated through the building) or warm air.

Installations of this type equipment are in the Heironimus Department Store, completed this month in Roanoke, Va., and the Ballinger Building in Philadelphia, Pa., to be completed in June. York now is developing packaged units for dwellings. York Corp., York, Pa.



HEAT PUMP with two-stage compression squeezes cheap heat even from subfreezing air.

Ready-to-Lay Flooring

Manufactured in standard block sheets, 2 x 3 ft by ⅛-in. thick, a new type of flooring is claimed to withstand heavy industrial loads and be easy and fast to install. It is recommended for use over concrete, wood or steel floors.

Called Nu-Flor, it consists of two layers of asphalt-treated felt separated by a core of interwoven fibers blended with asphalt. Intermixed with the asphalts and fibers are the same mineral reinforcing fillers used in composition floors.

The preformed 2 x 3-ft sections are laid side by side and cemented down with a special adhesive. To fit around projections, sheets can be cut or shaped with a linoleum knife. Traffic can roll over the floor immediately after it has been put down.

Said to outlast concrete, the flooring is claimed to be excellent for hand or power trucking in addition to being resilient and quiet. It is furnished in packages of 8 sheets. The Monroe Co., Inc., 10703 Quebec Ave., Cleveland 6, Ohio.

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STEEL
EVERY KIND IN STOCK
IMMEDIATE SHIPMENT
REINFORCING BARS and accessories
STRUCTURALS—channels, angles, beams, etc.
PLATES—many types including Inland 4-Way Safety Plate
SHEETS—many types & coatings
TUBING—incl. welded structural
WIRE MESH—all standard sizes
EXPANDED METAL—std. & flattened
STEEL SPIRALS, CAISSON RINGS, ETC.
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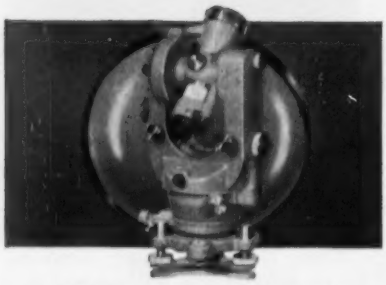
WILD T-1 OPTICAL REPEATING TRANSIT
Unmatched speed and precision combine with rapid set-up and maximum versatility for day or underground use.
NEW MODEL reading direct to 20 seconds, interpolation to 10 seconds.
STANDARD MODEL reading direct to 1 minute, estimation to 6 seconds.
PRICED AT $718 and $700 respectively, F.O.B. Port Washington, N.Y. Tripods extra.
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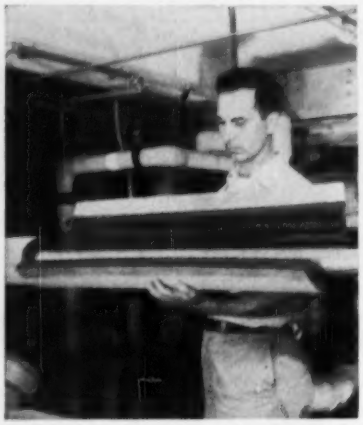


INSULATION needs no bands, staples, wire.

be sawed to the needed shapes and sizes on the job. The white aluminum-asbestos paper jacket requires no painting. The asbestos paper gives the insulation fire resistance, while the aluminum foil seals out moisture.

A further advantage claimed is that the covering is reusable should lines be changed.

Available in 36-in. lengths to fit all sizes of iron pipe or copper tubing from ¼-in. up, LT Cork Covering comes in three standard thicknesses. Armstrong Cork, Lancaster, Pa.

Snap-on Markers for Pipes Are Color-Coded by the User

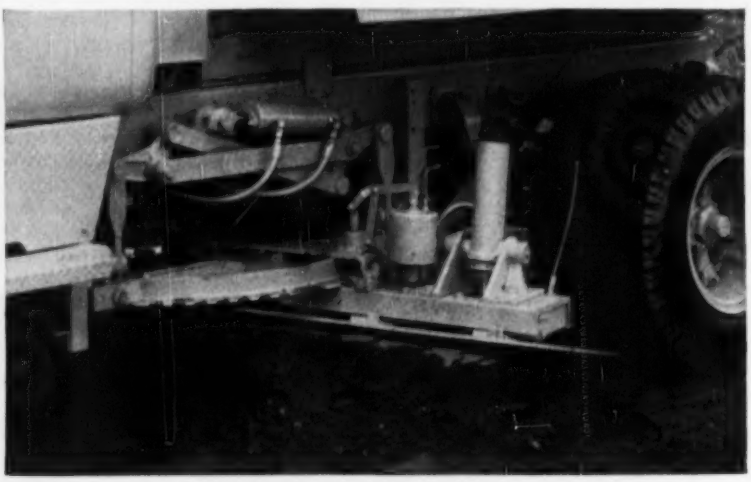
A new, inexpensive, "do-it-yourself" safety item, made primarily for industrial plants, is available to contractors.

The safety measure is a permanently shaped, wrap-around, snap on, vinylite plastic identification marker.

The identification marker can be color coded to conform to any standard that the user may desire, and the markers used to identify the material transported in a pipeline or the type of pipe being used, for the benefit of electricians, plumbers, and any other workers who may come in contact with the pipe. Descriptions are printed on light, fast-color paper that is completely enclosed in plastic. The whole unit forms a cylinder around the pipe which will hold its shape and not fall off or be put back on the wrong pipe. Wilmington Plastics Co., 810 S. Heald St., Wilmington 1, Del.

Two New Vapor Barriers Use Reinforced Paper Base

Two new paper products, Sisalkraft Vaporstop and Sisalkraft Moistop, for floor waterproofing are said to effectively solve the vapor barrier problem. The first is a utility vapor barrier. Available in standard widths, its prin-



Attachment Turns Truck Into Road Maintainer

A year-round maintenance unit is the Wausau truck patrol ice planer. Designed specifically for road upkeep at speeds of from 6 to 20 mph, the attachment can cut and grade all types of gravel and dirt roads, eliminate ruts, holes and washboards.

For winter operation, it planes, breaks and removes ice and hard-packed snow. Full power hydraulic control from the cab permits the operator to reverse, tilt and rotate the working blade to the best operating position for all conditions. Because the unit is mounted under the truck, extra weight can be added when necessary for heavy cutting and more difficult jobs. Wausau Iron Works, Wausau, Wis.

cipal use is under concrete floors and over crawl spaces. Consisting of a fungicide-treated paper product that is reinforced for strength, Vaporstop meets FHA and VA minimum property requirements.

Recommended for commercial and industrial construction is the premium material, Sisalkraft Moistop. It can be used as a permanent vapor barrier under concrete or as a ground cover in crawl spaces of residences. Moistop is a reinforced paper-supported polyethylene product. The manufacturer claims it has the permanency and resistance-to-rot advantages of pure polyethylene, plus the strength characteristics of reinforced paper. AMERICAN SISALKRAFT CORP., ATTLEBORO, MASS.

Hydraulic Blade Tilter Is Operated From Driver's Seat

Designed to give D8 and D9 tractors increased versatility on jobs such as ditching, pioneering roads on hillsides, digging rocks and other applications which require tilting of the blade, a new hydraulically actuated bulldozer tilting attachment is now on the market.

The tilt cylinder is controlled from the operator's seat and either corner of the No. 9S blade can be raised approximately 28" above ground level by retracting or extending the tilt cylinder. On the No. 8S, this figure is 24".

Additional tilt can be obtained by extending or retracting the screw-type righthand brace. CATERPILLAR TRACTOR CO., PEORIA, ILL.

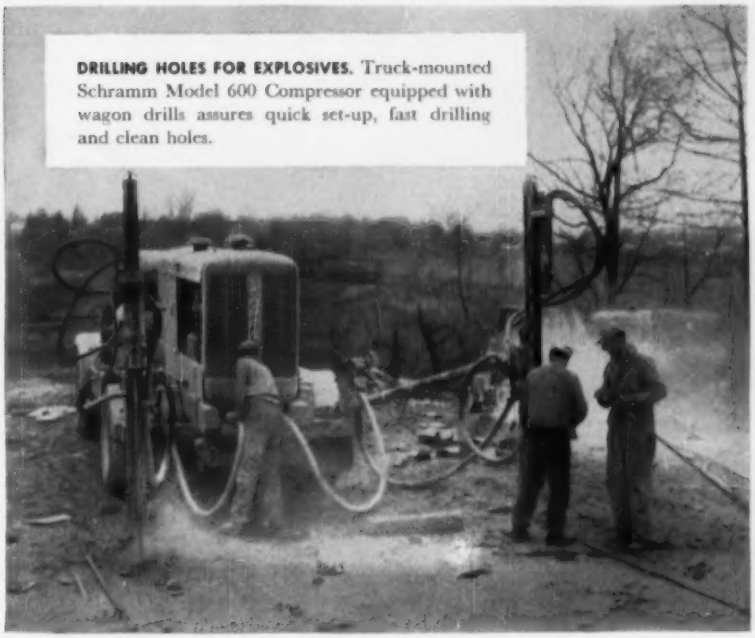
Washing and Screening Plant Has a High Production Rate

A stationary washing and screening plant now on the market is designed for producing up to 100 tons per hour of washed sand and gravel.

The plant—Model 365W—can be equipped to turn out simultaneously up to four sizes, plus oversize, of washed gravel and one size of washed sand. And it can be adapted to varying product size requirements, frequently only by changing screens.

Water consumption runs from 500 to 750 gmp, depending on the nature and amount of raw material fed to the plant. Individual electric motors drive all units except the feeder, which is chain driven from the feeder conveyor tailshaft.

Although the 77,000-lb plant is a stationary one, it is engineered and built to facilitate moving from one



DRILLING HOLES FOR EXPLOSIVES. Truck-mounted Schramm Model 600 Compressor equipped with wagon drills assures quick set-up, fast drilling and clean holes.

LEADING HIGHWAY BUILDER SAYS:

"We keep this Schramm Compressor busy all the time"

In highway construction, where the jobs are tough and heavy, Schramm Compressors seldom get a chance to rest. Especially the rugged Model 600, the reliable source of air for rock drilling, pile driving, tunneling, trenching, caisson work, pavement breaking, or almost any job you want to name.

Schramm Compressors are dependable. You scarcely ever see one shut down for repairs. And with Schramm on the job, you never have to worry about fluctuations or failure of your compressed air supply. Schramm Unistage Compressors are designed to deliver their full rated amount of air at their governed speed.

Schramm Compressors are economical, too. They operate at low cost when delivering the rated amount at 100 psi—or when delivering less than rated capacity. Jacketed for water cooling, they operate far more efficiently than ordinary air-cooled compressors. And all have completely enclosed lubricating systems.

The Schramm Model 600 Compressor operates at 1200 rpm—delivering 600 cfm at 100 lb. Other Schramm Unistage Compressors have capacities of 105, 210 and 315 cfm. Full details are yours for the asking. Write for Catalog No. SPB-56.

Your local Schramm Dealer is listed in the Yellow Pages of your telephone directory.

Schramm, Inc.

MANUFACTURERS OF AIR COMPRESSORS

620 North Garfield Ave. West Chester, Pa.

ANOTHER EFFICIENT SCHRAMM UNIT is this Schramm Heavy Pneumatractor with one-yard bucket. This rig can handle up to 4000 pounds. With bucket and backhoe, you get a unit that replaces many individual machines on the job.

FORM PIN DRIVER OPERATING FROM STANDARD PNEUMATRACTOR. This rig is a gasoline engine driven, 125 cfm air compressor with tractor features. A wide variety of auxiliary air driven tools permits Pneumatractors to do an astonishing variety of jobs.

HOW TO BUILD A SAFER STAIRWAY

use TRI-LOK and TRI-FORGED stair treads

For the safest and strongest stairways, insist on *Tri-Lok* or *Tri-Forged* stair treads. Cuts slipping to a minimum, eliminates overstepping. Get complete information on Tri-Lok and Tri-Forged steel grating and stair treads now. Write to

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Pittsburgh 22, Pennsylvania
National Distributors

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WELD-CRETE®

Weld-Crete is the amazing liquid bonding agent which enables you to *permanently* bond new concrete *directly* to old concrete . . . or to most any other structurally sound surface . . . *without need for costly, time-consuming chipping, drilling, roughening, acid washing or scarifying of concrete base.*

Weld-Crete has equal bonding permanence all climates, all surfaces, all sorts of conditions. When used with quick setting cement topping you can lay new floors, ramps, driveways, etc. one day and run heavy truck traffic over them the next. Get facts from your building materials supply dealer or write Larsen Products Corp., Box 5756-I, Bethesda, Md.

TYPICAL **WELD-CRETE** APPLICATION

National Brick Co., Terra Cotta, D. C.

Here Weld-Crete was used to bond new ¾" concrete topping directly to old, badly chipped and spalled floor slab which had been subjected to ceaseless heavy truck traffic. Plant shut-down time eliminated as Weld-Crete enabled National's own mechanics to do job over week end.

pit or project to another. PIONEER ENGINEERING WORKS, INC., 1515 CENTRAL AVE., MINNEAPOLIS 13, MINN.

New "Payloader" Model Built To Deliver More Yardage

An increased size tractor-shovel model is now on the market. In addition to a complete "no-stop" powershift transmission and torque converter, these new units are equipped with planetary axles and torque-proportioning differentials. It has a heaped capacity of 2¼ cu yd and a struck capacity of 1¾ cu yd.

Introduced to the tractor-shovel field for the first time, the torque-proportioning differential is designed to combat wheel slipping.

Other features of the Payloader include a hydraulic load shock absorber, pressure-controlled hydraulic system; power steering; four-wheel hydraulic brakes and oil-to-air heat exchange for cooling torque converter and transmission oil. FRANK G. HOUGH CO., LIBERTYVILLE, ILL.

Steel-Rubber Compaction Unit Can Be Either One, or Both

A combination steel-roller and pneumatic-tire compaction unit for highway construction provides independent or combined operation. Known as Duo-Pactor, the machine is claimed to speed up compaction, provide higher densities and maintain grade and surface levels throughout compaction process. SEAMAN-GUNNISON CORPORATION, BARABOO, WIS.

Shallow Lighting Fixtures Designed for Low Ceilings

Designed especially for low ceilings, a new group of shallow lighting fixtures is available in four different styles of shielding: plastic louvers, metal louvers, dished plastic, or low-brightness lens.

Made of 20-ga steel with luminous side panels, the fixtures are only 3⅞ in. deep. They come in four- and eight-foot lengths, and 13⅜- or 23¾-in. widths. Hinges permit the shield to either swing down for re-lamping or to be easily removed for servicing.

The louvered shielding is designed for stores, lobbies or hallways where appearance is important. The dished plastic and low-brightness shielding is intended for offices and schools, or wherever the presence of glare is a problem. SYLVANIA ELECTRIC PRODUCTS, INC., 1740 BROADWAY, NEW YORK 19, N. Y.

Extruded Calking Compound Adheres to Many Materials

Composed of 100% solids to eliminate shrinkage, a new extruded calking compound, Parflex, is claimed to have excellent adhesive qualities on stone, concrete, marble, aluminum, steel, brick, porcelain enamel and glass. Available in strip or roll form, the extruded ribbon is said to be resilient from −30 F up, holding its form without sagging or running to 200 F.

Among advantages claimed for the new product are uniformly tight seams (free of voids), speedy application, little waste, and the fact that it is non-oxidizing, non-film forming.

Developed over the last six years, the compound was used for calking the metal panels of New York's new Socony-Mobil Building. It comes in an off-white color in rolls or strips up to 3 in. wide and ¼ in. thick. A silicone-treated backing material prevents sticking during handling. PARR PAINT & COLOR CO., 18400 SYRACUSE AVE., CLEVELAND 10, OHIO.

Plastic-Lined Paper Forms For Round Concrete Columns

A plastic-lined fiber form now available for forming round concrete columns is said to release immediately, not adhere, and leave a smooth dustless finish on the column. In addition, it is claimed to be strong, rigid and water resistant.

Key feature of the form—tradenamed Deltube—is the plastic liner that enables it to be stripped quickly. The tube itself is constructed of plies of long jute paper fibers. The outer ply is asphalt-saturated. Plies are bonded with a waterproof adhesive. DELTA CO., 333 W. 24TH PLACE, CHICAGO, ILL.

Publications

Timber connectors—How and where to use split rings, shear plates, toothed rings, spike grids, clamping plates and framing anchors fill part of the 12-page, 1956 edition of "Teco Products and Services for Users of Wood and Forest Products." Included are photos, specifications drawings, general descriptions and detailed dimensions of connectors and installation tools. The booklet also lists services supplied by Teco (research affiliate of National Lumber Manufacturers' Assn.), names U. S. fabricators of timber trusses. TIMBER ENGINEERING CO., 1319 18TH ST., N. W., WASHINGTON 6, D. C.

Overhead cranes—Handbook M-100 covers electric overhead traveling cranes and other handling equipment. Published for crane buyers and users, the illustrated, 40-page booklet contains information about manufacturing and classifying cranes, runways and electrical equipment. DOMINION BRIDGE CO., LTD., BOX 280, MONTREAL, QUEBEC.

Glare-reducing glass – Illustrated in color, a 4-page bulletin relates the features of gray-tinted Lo-tram (for low transmission) window glass to the seven goals in school lighting set up by the National Council on Schoolhouse Construction. Physical data include thickness, sizes, transmission factors for light and solar energy, and a table showing permissible glass areas at certain wind speeds. Additional technical information, such as brightness survey charts is offered. Ask for Bulletin L-2, HOUZE GLASS CORP., POINT MARION, PA.

Lab apparatus—Apparatus, chemicals and test solutions for waterworks and sewage plant laboratories are listed in a 32-page catalog which includes latest prices. Featured is the Ardco electrical polargraphic instrument for measuring dissolved oxygen in clear or sludge samples without need of chemical treatment or color measurement. GENERAL LABORATORY SUPPLY CO., P.O. BOX 2607, PATTERSON, N. J.

Plastics—An illustrated, well-bound brochure on plastics and their many uses in the construction industry is now available. The brochure sets up a basic bibliography, identification of various types of plastics and their uses, specifications for chemical resistance, strength and other properties. WILMINGTON PLASTIC CO., 810 S. HEALD ST., WILMINGTON 1, DEL.

No clutter or confusion at paving site. Premixed concrete delivered by Dumpcretes ready for placing.

PAVING ON THE OHIO TURNPIKE

Non-agitated Hauling Meets Every Test

On sections C-2 and C-3 of the Ohio Turnpike there's no clutter at the paving site. No paver, no water trucks, no men to run them.

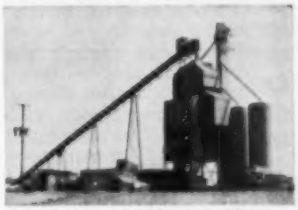
Just spreaders and finishers, plus a Dumpcrete or two discharging 4 yards of premixed concrete in 60 seconds.

The automatic central mixing plant is midway on the 10-mile job. Three men run it. 14 Dumpcretes haul its 95,000 yd. production.

Here's the bonus. The single plant supplies concrete for bridges, culverts, walls and widening as well as paving.

"It's an efficient, high-production operation. We like it," says D. W. Winkelman, contractor.

This method cuts costs on small jobs, too. It's approved by 25 state highway departments. Write for bulletins today.



Central mixing plant located midway on job.

Slump, cylinder, beam and air test (above) all O.K.

Maxon Construction Co., Inc., Manufacturing Div. 6
2600 Far Hills Building, Dayton 9, Ohio

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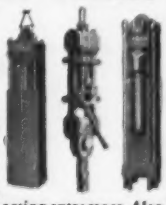

Now made in complete standardized line of 11 double-acting hammers, 5 single-acting hammers and 2 double-acting extractors. Also Sand Drain Equipment and Steam Generators.

Write for free descriptive Bulletins.

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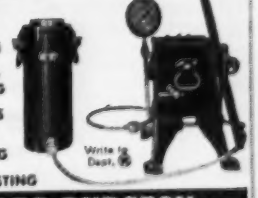

Write to Dept. D

RICHARD DUDGEON INC.

799 BERGEN ST. • ST 9-4040 • BROOKLYN, N. Y.

Darex Diary

No. 11 of a series

by Henry L. Kennedy
Member, American Concrete Institute
Manager, Construction Products
Dewey & Almy Chemical Company
Cambridge, Mass.

*The fingerprint of a molecule
*Vibration of air entrained concrete
*Compressive strength of cores versus cylinders

As a part of our current $75,000 expansion of laboratory facilities, we recently acquired a fancy piece of apparatus known as an infrared recording spectrophotometer. This highly complicated gadget plots the actual profile of an unknown organic substance, making possible an accurate analysis. This is the way it works. An infrared beam is passed through an organic sample. This causes the sample's molecules to vibrate and absorb energy at certain definite frequencies, which are recorded for interpretation. This record, or infrared spectrogram, is so completely unique that it has been called "the fingerprint of a molecule." Incidentally, the operation and interpretation of data from this apparatus is so complex that a trained specialist, known as a spectroscopist, is required to operate it.

We are now using this infrared spectrophotometer extensively in our research and development program and in quality control. It provides added assurance that our Construction Specialty products will continue in the tradition of uniformity and quality for which they have become known throughout the world.

* * * * *

The advantages brought to concrete by the purposeful entrainment of air are well recognized by most concrete users. And so are the technical and operational advantages of internal vibration in concrete placement. But what is not clearly established is the relationship between these two techniques.

As we all know, many of the desirable effects of air entrainment have been achieved by the time the concrete is placed in the forms, before vibration. These are lower water-cement ratio of the air entrained mix, improved plasticity and workability, reduction in segregation. Naturally, such concrete will respond much more readily to consolidation effort, particularly if this is brought about by modern, high frequency internal vibration. But the thing to watch in this operation is that the concrete is not subjected to over vibration.

Sustained internal vibration—over and above that which is required to consolidate the concrete—can cause segregation of the coarse aggregate. Since uniformity and homogeneity are properties in the concrete that we always strive to obtain in the finished product, over-vibration could be undesirable. A second effect of over-vibration is the reduction in the actual volume of entrained air.

These things we know. But how about bleeding? Is the concrete in place durable? These are the questions modern concrete technology is still striving to answer. Until more is known about these things, we recommend that internal vibration be limited to the extent necessary to thoroughly consolidate the concrete. Evidence at hand suggests that not to do so could be undesirable.

* * * * *

Have you ever wondered why the compressive strength of cores removed from the concrete structure is consistently greater than the compressive strength of job-made compression cylinders? It is also fairly well established that the magnitude of this difference is greater for air entrained concrete than it is for plain concrete.

A logical explanation for this difference is the fact that concrete placed in the forms receives a higher degree of consolidation through internal vibration than does concrete hand tamped in a cylinder mold. Since the improved plastic qualities of the air entrained concrete make it even more responsive to internal vibration, it seems likely that this feature is the explanation for the wider margin in strength noted between cores representing the structure and corresponding job-made cylinders.

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. . . Men and Jobs

G. O. Evans

Fort Randall Dambuilder To Head Ten Northeast Jobs

George O. Evans, who had charge of the construction of the Army Engineers' Fort Randall Dam across the Missouri River at Pickstown, S. D., is being transferred to a new dam-building assignment in the New England region.

He will report June 1 to the New England Division, Corps of Engineers to become area engineer in charge of building ten flood control dams and two local protection works on tributaries of the Naugatuck and Connecticut Rivers. The projects are located in New Hampshire, Vermont, Massachusetts and Connecticut. He will operate out of an area office at Springfield, Mass.

Evans, 56, is a 28 year veteran of Army Engineers. He not only had charge of the now virtually complete Fort Randall dam since work began, but as chief of engineering for the Omaha District before that, he did much of the preconstruction engineering on the structure.

Board of Engineers for Rivers And Harbors Gets New Man

Col. Gunnard W. Carlson, now with the 6th Armored Division, Fort Leonard Wood, Mo., will become resident member, Board of Engineers for Rivers and Harbors, at Washington, D. C.

Colonel Carlson will succeed Col. Hubert S. Miller, resident member since July, 1955, who will retire from active service.

The Board of Engineers for Rivers and Harbors, comprising seven senior officers of the Corps of Engineers, was established in 1902 as an independent body for reviewing reports on proposed federal projects involving navigation, flood control and related purposes such as production of hydroelectric power.

Colonel Carlson was commissioned in the Corps of Engineers in 1931 upon graduation from the United States Military Academy. He received a master of science degree in civil engineering from the Massachusetts Institute of Technology.

He has served as assistant division engineer, New England Division, in the Office, Chief of Engineers, Washington, D. C., and from 1952 to 1953 he was assistant division engineer, Mediterranean Division. From 1953 to 1955 he served as East Atlantic District Engineer.

Mosbaugh Heads Basin Group Succeeds Gen. W. E. Potter

Harrel F. Mosbaugh of Billings, Mont., is the new chairman of the Missouri Basin Inter-Agency Committee. Mr. Mosbaugh, inter-agency field representative for the Department of the Interior, was chosen by the MBIAC at a meeting at Wheatland, Wyo.

He succeeds Brig. Gen. W. E. Potter of Omaha, Missouri River Division Engineer of Army Engineers, who is leaving this month to become Governor of the Panama Canal Zone.

Reviewing his tenure at Omaha, General Potter declared that "foremost among the things which concern me is the slow, seemingly reluctant progress in the lower basin"—Missouri and Kansas.

Four Longtime USGS Men Retire From Division Office

Conrad A. Ecklund, head of the topographic division office of the U. S. Geological Survey in Sacramento, Calif., has retired after 46 years of service. He personally mapped many areas in the Rocky Mountain and Pacific Coast states and was largely responsible for the first modern set of maps covering Los Angeles city and county.

Ecklund was joined in retirement by three other Geological Survey employees in the Sacramento office:

Roy R. Monbeck ended 44 years of service which included work with the General Pershing Commission in mapping an area in dispute between Chile and Peru in South America.

Roland Burchard retired after 40 years of activity including spectacular topographic work through the Grand Canyon in 1923.

Charles N. Mortenson retired after 33 years of service. His most notable assignment has been a control survey in preparation for mapping of the Columbia River to the Canadian border.

Men and Jobs Briefs . . .

• **Associations**—The Engineers Club of Winston-Salem, N. C. elects **Arthur J. McGrane** president.

• **Corps of Engineers**—The executive officer, **Col. Gerald P. McCarthy,** at the Engineering School, Fort Belvoir, Virginia is assigned as district engineer for the Corps at Tullahoma, Tenn. He succeeds **Col. Lavonne E. Cox,** who goes to the Air War College, Maxwell Air Force Base, Ala.

• **Careers**—Pennsylvania appoints **John V. Hoey** of Norristown, Pa., as district engineer of the Philadelphia area for the Department of Highways. He succeeds **Edwin J. Kinney** . . . **J. W. Kuehl,** for 39 years an engineer for the Tacoma, Wash., Water Division, advances to superintendent of the division to succeed **W. A. Kunigk,** who will retire July 1.

Sanitary engineer with Public Health Service, **Edmund J. Laubusch,** completes a tour of active duty, and joins the staff of the Chlorine Institute, Inc., New York . . . **Robert E. Barkley,** associate director of the City-County Planning Board at Winston-Salem, N. C. resigns to become executive director of urban redevelopment for the city of Chattanooga, Tenn.

• **Business**—International Harvester Company elects **John L. McCaffrey** chairman of the board of directors and chief executive officer of the firm . . . The Corbetta Construction Co., Inc., New York City, appoints **John A. Tantillo** and **James B. Lyttle** as assistant vice presidents.

The Kansas City Bridge Company announces the appointment of **John N. Newell** as chief engineer and **George Morgan** as construction manager . . . **Joseph S. Ward,** consulting engineer, moves his office to Upper Montclair, New Jersey.

Darex
products at work

DAREX AEA
used in 75,000 cubic yards of air-entrained concrete for new Prudential Building

Architects-Engineers: Naess & Murphy
Contractor: George A. Fuller Company

At the new Mid-America Home Office of The Prudential Insurance Company of America in Chicago, 40,000 cubic yards of concrete were poured for the sub-structure and 35,000 cubic yards of lightweight concrete for others parts of the building. DAREX AEA was used in all of this concrete to control air entrainment at 3% to 5%.

In concrete for all types of construction, DAREX AEA provides close control of air entrainment. Concrete made with DAREX AEA also places easier, finishes faster and better, is many times more durable when exposed to freezing and thawing. Write today for complete information about DAREX AEA, the world's leading brand of air entraining agent.

Other Dewey and Almy Products for the Concrete Industry

DARACONE — silicone-type water repellent

DARALITE — air entraining agent for use with lightweight aggregates

DARASEAL — premium quality concrete curing compound

DARAWELD — water repellent for the interior of below-grade surfaces; also bonds new concrete to old

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In Bituminous Paving Mixes—

Reduce Coarse Aggregate?

Surprisingly high stability values for bituminous paving mixes containing only about 45% of coarse aggregate have been found by research engineers of the Asphalt Institute in the first phase of a comprehensive study of bituminous paving mixes being conducted at the institute's laboratory at College Park, Md.

If these findings are supported by the results of other tests now being conducted, they could have an important economic effect—according to John M. Griffith, engineer of research for the Asphalt Institute because of the fact that satisfactory coarse aggregates are scarce in many regions. Satisfactory fine aggregates, on the other hand, are more plentiful.

This 45% figure is in contrast to figures around 60% of coarse aggregate for maximum stability found as a result of an elaborate study made some time ago by the Flexible Pavements Branch of the Vicksburg laboratory of the Corps of Engineers.

However, Griffith points out that the Marshall compaction method employed by his staff in the series of tests just completed, differs from the Marshall method employed at Vicksburg, which method later was found to give densities lower than those actually produced under field traffic. The modified Marshall being used at the College Park laboratory is expected to produce densities closer to those of field conditions.

Also, Griffith points out, the sand used in the current test program has a high Marshall stability value. He emphasized further that these findings are of a preliminary nature, based on only partial completion of an extensive series of laboratory tests.

• Several aggregates studied—Nine types of coarse aggregate, considered to be representative of construction usage throughout the United States, are being used with various combinations of fine aggregates in the Asphalt Institute studies. Varying asphalt contents also are employed.

The nine aggregates include New York traprock, Ohio limestone and slag, California and South Carolina granite, and gravel from Maryland, Tennessee, Michigan and Washington State. Four or more different gradations are being used with the aggregate types, ranging from 25% coarse aggregate (retained on the No. 8 sieve) to as high as 85% coarse.

Maryland sand from a single source is being used throughout the initial test series as the fine aggregate fraction, and a limestone dust is being used for the entire minus No. 200 fraction of all tests. Other fine aggregates and mineral fillers will receive attention, however, during later phases of the study. The asphalt cement used is an 85-100 penetration.

The optimum asphalt content for all the different coarse aggregates and all practical gradations ranged from 4.3% to 6.8%, based on total mix. All of the low-absorptive aggregate mixtures indicated Marshall optimum asphaltic contents of first a decreasing and then an increasing trend, passing from a low to a high coarse-aggregate content.

Generally, Griffith said, all of the aggregates exhibited increasing, and then decreasing, Marshall stability values at optimum asphalt content with increasing coarse aggregate fractions. Maximum stability values, he said, were reached near a 45% coarse-aggregate content.

The institute's research engineer pointed out another interesting finding in the first test series. He said that Marshall stability values at optimum asphalt content varied as much as 700 lb, depending on the type of coarse aggregate used, when the coarse aggregate content was as little as 25%.

Throughout all gradation ranges in the first phase of the study, Griffith said, those coarse aggregates having the more crushed or rough and angular particles indicated the highest stabilities.

• Other tests planned—The series of tests just completed employed only the Marshall test method. A similar cycle of tests using the Hveem procedure now is under way, and other asphalt-mix design methods are to be included in the study. These will be followed by studies on fine aggregates, mineral fillers, consistency of asphalt cement, and aggregate gradation. This work, which is expected to extend well into 1957, will complete the first half of an exhaustive investigation into paving-mix design being conducted by the institute.

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Unit Prices

Storm Drains Against California Floods

Los Angeles County Flood Control District will pay $2,426,895 for Slauson Avenue storm drain system in Los Angeles, California. This storm drain bond issue project was designed by the City Bureau of Engineering. H. E. Hedger is chief engineer and M. E. Salsbury senior assistant chief engineer for the District.

Fred J. Early, Jr., Co., Inc. of San Francisco got the contract. He underbid the second low bidder by 7.7% and the engineer's estimate by 12.7%.

This system includes approximately 10,665 lin ft of reinforced concrete box conduit. Of these, 2,240 lin ft are single reinforced and vary in size from 7 ft x 10 ft 6 in. to 9 ft 4 in. x 12 ft; 8,350 lin ft, varying in size from 9 ft x 11 ft to 12 ft x 14 ft, are double reinforced; and 75 lin ft, size 9 ft x 11 ft to 9 ft 4 in. x 12 ft, are triple reinforced.

Specifications require six sacks of cement per cu yd of Cl A concrete and that it test at 3,000 lb after 28 days.

Prevailing rates of per diem wages based on an eight-hour working day are $22.60 for cement masons, $24.00 for reinforcing iron workers, $17.60 to $21.20 for general laborers and sewer pipe layers, and $18.80 to $25.92 for equipment operators.

The six bidders include:

1C	Fred J. Early, Jr. Co., Inc., San Francisco, Calif	$2,426,895
2	MacDonald & Kruse and Pacific Allied, J. V., Sun Valley, Calif	2,630,338
6	Webb & White and W. J. Distell, J. V., Los Angeles, Calif	3,814,816
EE	City of Los Angeles, Bureau of Engineering	2,780,884

Bids: 2-17-56 Items	Unit	Quantity	Unit Prices 1C	 2
Excav, bkfl & resurf for				
RC box	cy	245,100	$3.70	$4.10
below subgr	cy	1,600	5.00	6.00
RC box conduit	cy	29,520	21.75	24.00
Stl, rel. f, f&s	lb	3,197,815	0.125	0.11
Portland cement, f	bbl	44,280	4.20	4.80
Manhole No. 1	ea	1	700.00	580.00
No. 3	ea	19	300.00	330.00
Transition struct No 1	ea	1	2,500	2,740
No 3	ea	1	1,500	900.00
No 5	ea	1	2,500	4,340
sta 21+87.05	ls	job	5,000	7,500
sta 22+72.01	ls	job	7,000	11,200
sta 49+72.66	ls	job	21,000	48,530
sta 56+60.66	ls	job	10,000	40,800
sta 87+13.89	ls	job	7,000	11,000
Junction struct No 1	ea	7	700.00	780.00
No 2	ea	1	650.00	480.00
Catch basin No 1	ea	23	360.00	390.00
No 2	ea	7	550.00	520.00
No 3, 14' wide	ea	9	750.00	880.00
21'	ea	2	1,700	1,100
28'	ea	5	1,800	1,360
35'	ea	1	2,500	1,830
42'	ea	2	2,750	2,420
49'	ea	1	4,800	3,400
Gutter, conc	sf	1,899	1.00	1.80
Access struct	ea	2	4,000	6,550
Outfall sewer supp, north	ls	job	15,000	15,150
Special trans struct	ls	job	13,000	24,130
RCP, 96", 1300D	lf	68	100.00	106.00
84", 1500D	lf	41	55.00	58.00
48", 1700D	lf	42	49.00	60.00
42", 1300D	lf	83	30.00	30.00
36", 1600D	lf	67	25.00	26.00
30", 1750D	lf	233	24.00	17.00
27", 1750D	lf	36	21.00	16.00
24", 1750D	lf	78	16.00	14.00
21", 1750D	lf	90	14.00	13.00
18", 1750D	lf	731	17.00	13.00
1500D	lf	158	14.00	12.00
15", 1750D	lf	32	20.00	9.00
12", 2000D	lf	105	20.00	8.00
Sewer, VCP, 8", std str	lf	1,082	9.00	6.00
15"	lf	29	9.00	9.00
8", extr str	lf	450	17.00	6.00
Manhole, std trap	ea	1	600.00	520.00
B	ea	7	400.00	300.00
Terminal cleanout struct	ea	1	200.00	80.00
Special struct, shallow	ea	7	300.00	200.00
Sewer hse conn, 6" VCP, remodel	lf	800	5.50	6.00
6" VCP ch sew, remodel	vf	45	7.00	7.00
Pipe supp across trenches	ea	118	190.00	190.00
Encasmt, conc, san sew	lf	22	7.50	7.00
Crossings, CIP, san sew	ls	job	1,700	2,000
Light condt ornamental	lf	2,500	2.50	2.10
cable	lf	7,470	0.30	0.30
Electroliers, orn light	ea	5	175.00	270.00
Trees, remov & replace	ea	139	80.00	60.00

Time to complete: 420 calendar days
Liquidated damages: $50.00 per day

Milwaukee Sanitary Sewer

Sewer outlets involving 4,700 lin ft of vitrified clay and concrete pipe cost $297,928. Ray D. Leary, chief engineer and general manager of the Sewerage Commission of the City of Milwaukee, Wisconsin, designed the work for two contracts.

The $112,823 contract awarded to Grange Construction Co., Milwaukee, asked for the pipe to be installed between a drainage ditch and the edge of a well traveled concrete road. Sand, gravel and water were expected in parts of the work.

The other contract went to R. W. Construction Co. of Milwaukee for $185,105. Work covers a main sewer through private right of way and a river crossing of some 300 ft which might require a cofferdam.

The owner furnishes manhole frames and lids. Class A concrete must contain 5½ bags of cement per cu yd.

Wage rates are $2.92 for skilled labor, $2.70 for semi-skilled and $2.48 for common labor.

South 13th St.

1C	Grange Const. Co., Milwaukee, Wis	$112,823
2	Milwaukee Underground Const. Corp., West Allis, Wis	120,644
HB	Tomaro Contractors, Inc., Cudahy, Wis	182,087

Bids: 2-15-56 Items	Unit	Quantity	Unit Prices 1C	 2
VCP, 21", in conc envlp, 6"	lf	1,077	$39.00	$43.80
24"	lf	1,653	40.00	40.40
Manhole, std	vf	86	30.00	40.00
drop	vf	53	40.00	50.00

Main Sewer in Right of Way

1C	R. W. Construction Co., Milwaukee	$185,105
2	W. J. Lazynski, Inc., Milwaukee	192,190
HB	Speedway Contracting Co., Milwaukee	295,723

Sewer, conc, 36"	lf	1,970	$92.50	$95.00
Manhole, std	vf	72	40.00	80.00

Time to complete: 75 working days
Liquidated damages: $100.00 per day

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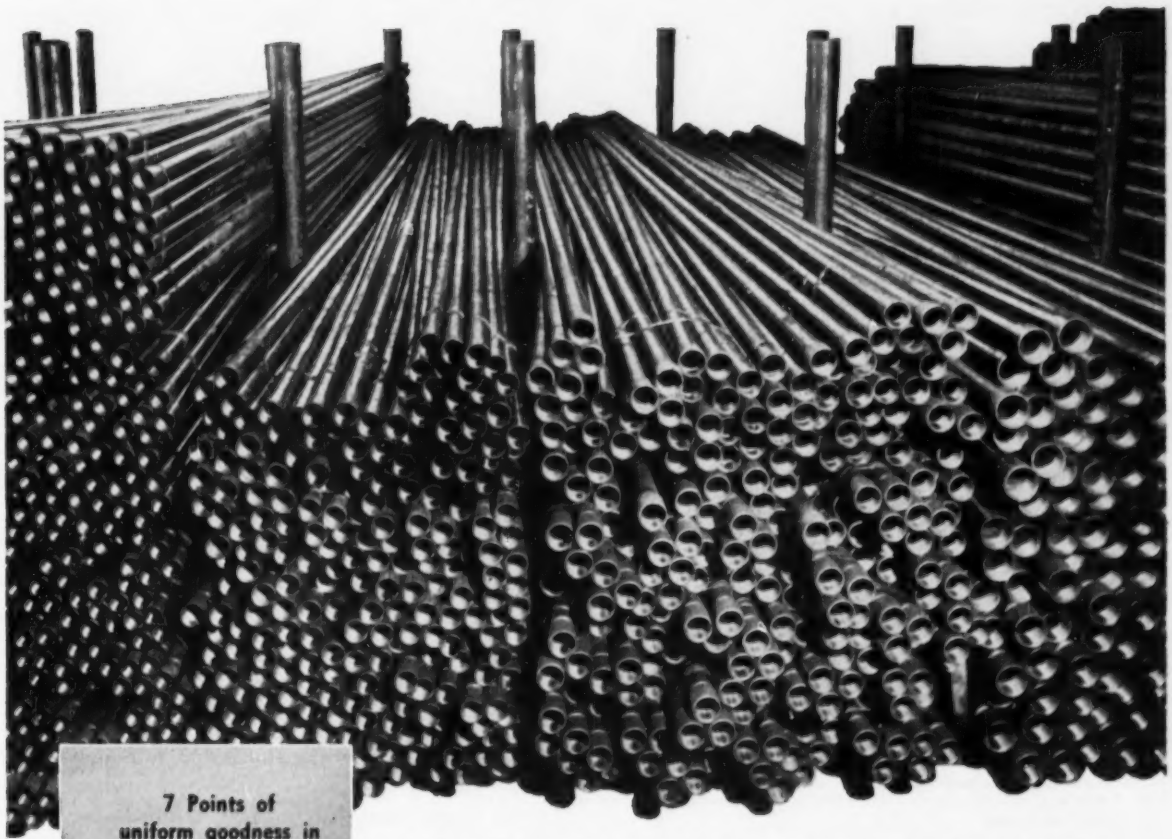

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You may compare the importance of uniform lengths of Youngstown Pipe with having the right tool for a job . . . the right nut for a bolt . . . the right washer for a fitting. There's no lost motion. The length you specify is the length you get.
Combine this with the 6 other points of uniform goodness in Youngstown Pipe and add the fact that Youngstown is made only of the finest steel, quality controlled from ore to finished product, and you have a real prize winner! Be sure to specify Youngstown on your next order.

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concrete by pipeline saves time... money!

A Rex 200 Double Pumpcrete located on the lower street level receives concrete chuted down from a Rex 34E Dual *Paver* (not shown) located on the upper street level.

Here the placing crew distributes and vibrates concrete into the forms at the end of the pipeline. As work progresses, pipe sections are removed. Note second pipe already in place to pour the next section.

Modern parking garage for Chicago put up fast with Rex Pumpcrete

A Rex 200 Double Pumpcrete was the solution to the problem of placing the five huge floor slabs quickly and at the lowest cost, when this five-floor concrete parking facility, No. 2 for the city of Chicago, was erected by the Herlihy Mid-Continent Company.

The project was made to order for Pumpcrete. Over 15,000 cubic yards went into the job. The five floor levels measure 200 feet wide, 400 feet long and ten inches thick.

All slab concrete was job-mixed in a Rex 34E Dual Drum Paver and pumped directly into the forms by Pumpcrete. All wall concrete was ready-mixed and placed by truck mixers.

Again, this job demonstrates Pumpcrete's ability to economically place concrete from the supply source directly to the forms—no expensive runways, ramps or buggies needed! Check the many advantages of Pumpcrete for your work. See your Rex Distributor for sales or lease information. Chain Belt Company, 4633 W. Greenfield Ave., Milwaukee 1, Wis.

Materials and Labor Prices Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES:

- June 7 —Cement, Aggregate, Ready-mixed Concrete, Asphalt
- June 14—Iron and Steel Products, Pipe
- June 21—Wood Products, Glass, Explosives, Chemicals
- June 28—Clay Products, Lime, Plaster, Paint, Roofing

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION—SCORED Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE—LOAD BEARING—SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, in paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized or lump
Atlanta	$148.25p	$148.25p	$296.50p	$333.55p	.....	.....	$32.44p	$32.44p	$32.70	$23.50	$24.50
Baltimore	202.00	215.00	406.00	458.50	$96.00	681.00	36.00k	41.00k	33.00	22.00	.....
Birmingham	135.00p	152.00p	.....	302.00p	376.00p	465.00p	37.00fg	38.00gg	33.35	22.30	26.33
Boston	210.00†	224.60†	459.00†	467.80†	.....	.....	40.00p	44.00p	35.70†	30.00†	.....
Chicago	136.00	145.00	280.00	.....	.....	.....	30.00	32.00	36.00	29.00	.....
Cincinnati	205.00j	225.00j	296.00jdd	213.00j	288.00j	114.00j	45.00j	46.00j	28.80j	24.25j	28.80j
Cleveland	195.00**	207.00**	.....	.....	.....	.....	40.00	42.00	29.75	24.75	.....
Dallas	.....	152.00	.....	.....	.....	.....	25.75	45.00	32.00	31.00	.....
Denver	.....	.....	.....	.....	.....	.....	36.00	41.00	34.80kk	29.00kk	34.00kk
Detroit	213.00	226.00	425.00	.....	620.00	710.00	41.00ee	40.50ee	34.00	30.00	.....
Kansas City	127.50	147.50	270.00	270.00	340.00	400.00	29.25	29.25	32.00	27.50	28.50
Los Angeles	r	r	r	r	r	r	30.00‖	.....	34.00	34.00	38.00
Minneapolis	185.00p	206.00p	422.00p	206.00pw	.....	.....	43.00*p	50.00	44.00hhe	34.00hhe	46.00hhda
Montreal	164.00sq	178.00su	325.00su	270.00	258.00	.....	42.00	49.00	39.20	22.00	13.75u
New Orleans	180.00	180.00	340.00	340.00	.....	.....	35.00	35.00	30.00	21.50	21.50
New York	158.10h	168.60h	231.70ch	255.20hn	.....	.....	44.00	.....	37.00	35.00	.....
Philadelphia	156.30	166.80	312.70	375.20	.....	.....	30/34	34/40	27.60	25.60	3.17
Pittsburgh	154.00	162.00	292.00	340.00	420.00	495.00	36.00	46.00y	32.00	29.50	2.97m
St. Louis	178.50ee	203.00ee	358.00ee	500.00ee	.....	921.50	43.00nl	41.50n	98aaa	80aaa	1.58aaapss
San Francisco	156.85n*	177.10n*	235.30ddn*	.....	.....	.....	39.50*	39.50*	26.60	26.60	30.50
Seattle	225.00ee	250.00ee	350.00ee	250.00eew	.....	.....	43.00u	55.00u	46.00ahh	38.25hh	3.90mhh
Toronto	138.70	148.90	273.75	222.00f	.....	.....	41.50	63.00	40.00	33.50	31.00

*† F.o.b. yard Roxbury. *a Smooth. *b Per 50 lb. bags. *c 6 x 12 x 12 in.-3 cell. *d Pulverized hot. *e 5% 10th following month. *f 8 x 8 x 12. *g 8½ x 8 x 12. *h F.o.b. trucks, job site N.Y.C. *j Truck load or over. *k $1.00 discount. *l Red face. *m Per bbl., 180 lb. *n 7½ x 7½ x 12. Speed tile. *o Truck lots. *p Provincial and Municipal tax extra. *r Not used because of earthquake danger. discount for cash. *s 1½ x 8 x 11½. *u Tax exempt. *v Sand lime. *w 8 x 8 x 12. *y Stacked. *z Pebble lime price per 80 lb. sack. not sold per ton. *bb LCL. *cc Truck delivery. *dd 6 x 12 x 12. *ee Pebble lime. *ff 80% common. *gg Rough. $40.00 Smooth. *hh Ict. *** Warehouse delivery. ** F.o.b. plant Stockton. *aa Price per sack. Lime ‖ F.o.b. yard

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry a	WHITE LEAD Per 100 lb. in 100 lb. cases In oil w	READY-MIXED PAINT Per gal., drums Graphite b	Aluminum c	Ferric Oxide d	ROOFING SUPPLIES; Carload lots f.o.b. factory Rolls, slate surfaced, 85–90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$19.25	$28.375	$3.89	$3.86	$3.31	$3.00	$2.81	$2.81	$0.60	$55.00
Baltimore	19.00	27.00	2.75	4.25	3.38	2.78	4.28	4.25	.48	50.18
Birmingham	19.38	28.375	3.90	3.40	....	3.00	3.55	3.55	.75ff	33.50ee
Boston	19.00	27.90	....	....	....	3.24g	2.75ag	2.75ag	.45e	54.00g
Chicago	19.00	27.90	....	....	....	3.40‖e	2.86‖e	2.86‖e	43.50‖bbr	52.70‖
Cincinnati	19.00	27.90‖	....	....	....	3.00	3.55	2.55	.594g	49.36
Cleveland	19.00	27.90	2.50ppg	2.85gg	2.83gg	3.00j	2.55e	2.55e	.45g	44.00AA
Dallas	19.25	28.65	....	4.05	....	3.50g	3.75e	4.35e	.56	58.50AA
Denver	19.50	28.40	3.29	5.15	3.04	2.70	2.25e	2.25e	.48ff	45.00
Detroit	19.00	27.90	2.35	3.25	2.90	2.83	2.205f	2.205f	.53	47.30
Kansas City	19.00	28.65	3.64	3.12	2.76	3.31	3.16e	3.16e	.52	75.91
Los Angeles	19.00	28.15	3.30n	4.50n	4.20n	2.90n	j	j	.64nq	j
Minneapolis	19.00	29.88/28.02	....	....	....	2.70kkl	2.295kkkl	2.295kkkl	.45kkl	48.00r
Montreal	.....	21.96	5.02Dfl	5.94Efl	4.65Ffl	....	....	....	....	....
New York	19.00	27.90	....	....	....	2.70G	2.30Ge	2.30Ge	.463Ge	46.00e
Philadelphia	19.00	27.90	3.60	3.40/3.65	3.50/4.60	2.54	2.94	2.94	.37	28.60
Pittsburgh	19.00	27.90	3.10	3.36	3.68	3.72	2.85e	2.85e	.42	58.75
St. Louis	19.00	27.90	....	....	....	2.70*	2.30A	2.30A	.53y	51.25
San Francisco	19.00	28.15	2.95	4.15	3.40	2.67	1.80**	.....	.47	....
Seattle	19.00	28.40	3.30mee	4.02mee	....	3.42mqee	2.91kmee	.....	.82mee	53.00mee
Toronto	.....	.....	....	....	....	4.45	4.10	.....	1.50	80.00

*‡ Delivered. * Note: Red lead in oil 50¢ higher than white lead in oil. *a Red lead prices change frequently due to pig lead price changes. *b U. S. War Dept. Spec. 3-49A. *c ASTM Spec. D266-31. *d 86% minimum ferric oxide. *e 15 lb. *f Per 432 sq. ft. *g F.o.b. yard, Roxbury. *h Per roll, 65 lb. *i Net carload lot prices; Minneapolis and vicinity. *k Per cwt. *l Not used. *m 1% discount for cash. *n F.o.b. city. *o Per 40-lb. roll. *p 6-drum, 50 gal. ea. *q Per 90-lb. roll. *r F.o.b. factory, Chicago. square. *v Per ton. *w Price to large paint contractors is $1.25 less *x Mineral surfaced. *y 55-gallon container. *z Drums. *aa 15 lb., 324 sq ft roll. *bb Roofers coating and cement; Price per ton. *cc LCL, truck delivery. *dd 2% cash discount. *ee Asphalt pitch in 100 lb. package. *ff 5-gal. drums. *gg F.o.b. factory. *hh Incl. freight. *D Std. Black. *E Ready-mixed. *F Over 88% ferric oxide. ** Aver. wt. approx. 425 to 500 lbs. drums. *G fob factory points *s Truckload. *t Federal tax included, add 5% mun. & prov. tax. *u Per 90-lb.

PLASTER, VERMICULITE AND METAL BUILDING SHEETS & TUBING

	PLASTER† Neat per ton	Gauging per ton	VERMICULITE† Home Insulation pellets	Plaster aggregate	Concrete Aggregate Untreated	PERLITE Plaster Aggregate	Concrete Aggregate Untreated	ALUMINUM SHEET^ Flat, .102" th 36"x96" & 48"x144" per lb	Corr roof .032" th 35"x12' per sht	STAINLESS STEEL SHEET*-TYPE 302g 20 ga 48"x96 120" per cwthh	26 ga 36"x120" per cwtmm	COPPER WATER TUBING-TYPE L 2000 ft lots per ft¤ ⅝"b	¾"c
			per bag of 4 cu ft										
Atlanta	$32.50	$39.00	$1.55e	$1.65e	$1.80dd	.....	.....	$0.359m	$9.01n	$53.68n	$61.18n	$20.23f	$28.47f
Baltimore	24.10	34.50	0.95	1.15	1.15	$1.10	$1.45	0.391	0.427r	56.25	64.25	0.23	0.30
Birmingham	38.00	43.00	1.55	1.55	1.80f	1.55	1.55	0.455	9.52	55.68	65.68	0.1987	0.2796
Boston	22.00	29.00	1.15/1.20	1.18/1.23	1.30	....	....	0.48p	26.15op	55.88dd	61.655ddff	0.1987	0.2796
Chicago	26.80	26.80	1.55	1.60	1.60f	1.50	1.50	0.455e	9.775fp	57.55fee	65.55fee	0.1987	0.2796
Cincinnati	21.60*o	21.60*o	1.75	1.75	1.75	1.38	1.44	0.400	8.66	57.60	69.30ff	0.1881	0.2644
Cleveland	27.50	43.00	1.12	1.16	1.24f	1.40	1.40	0.418aa	8.66	57.66	65.66	19.87f	27.96f
Dallas	29.80	31.80	1.20	1.25	1.30f	1.21	1.32	0.370	8.430r	55.00	63.00	0.1449	0.2029
Denver	25.00	25.00	1.45	1.35	1.50	1.40	1.50	0.452	9.23	57.67gg	67.87gg	0.2214	0.3114
Detroit	25.00	25.00	1.27	1.35	1.37	1.49	1.53	0.455	9.235	57.70	65.70	16.70fee	23.50f
Kansas City	30.00	35.00	1.20	1.30	1.40	1.35	1.50	0.431	10.32	60.72ee	68.72ee	22.54f	31.72f
Los Angeles	26.20	27.20	1.25ii	1.20ii	1.25ii	....	1.60	0.48	8.99	56.10	66.10	0.2295	0.3230
Minneapolis	32.00	32.00	1.50	1.60	1.80	1.25	1.35	0.482	8.65	56.45	64.20ff	0.1937	0.2795
Montreal	28.80	33.20	1.10	1.30	1.30	1.15e	1.15e	0.372	8.25	62.75	....	0.26	0.320
New Orleans	32.00	45.00	1.50	1.20	1.25	1.25	1.25	0.403	0.389aabb	58.18	66.18	0.1987	0.2796
New York	24.00	30.00	1.25	1.20	1.30	1.30	.....	0.445for	8.98f	58.48	66.48	19.87f	27.96f
Philadelphia	23/25	32.00	1.35	1.35	1.40	....	....	26.50fwx	7.55f	53.23f	60.98f	18.87f	26.09f
Pittsburgh	27.50	31.00	1.30	1.30	1.32	....	....	0.42	9.19	56.81	62.63	0.2045	0.2572
St. Louis	31.00	40.00	1.30	1.55jj	1.50	1.60	1.45	0.468io	9.23e	58.04kk	77.04kk	22.54fm	31.72fm
San Francisco	27.85	32.00	1.05	1.05	1.24	1.03	1.25	0.46	8.45ee	62.55e	70.55e	0.1987	0.2796
Seattle	38.00	41.00	1.45	1.25k	1.85l	1.40k	.....	0.403	7.980	60.50ee	68.00ee	0.1987	0.2796
Toronto	30.00	45.00	1.20	1.30	1.35	....	....	0.409	21.55	58.80	92.40	0.3289pp	0.4136pp

† truckiots, delivered * carload ‡ delivered *a fob city *b ½" O.D. *c ⅝" O.D. *d In 1M lb skids *e Previous prices were 5-10M lb bracket *f per 100 ft *g 5 tons & up; cold roll, anneal & pickled: 2B finish *h 15M lb *i 3003 alloy; 1100 alloy: $0.466 lb *j 1100 & 3003 alloy, mill finish *k per bag of 3 cu ft *l treated with air entraining agent *m 2-10M ft *n fob plant, fr allow *o 5M lb & up *p 100 sq ft quantity *q 2M lb quantity *r per lb *s 30# bag *t 36" x 96"; 10.81 lb /sh; 48" x 144" 21.7 lb /sh *u 19.31 lb /sh *v fob plant *w 48" x 144" *x 36" x 96" $13.25 sh *aa 16M lb & up *bb fob mill *cc 28" x 8-12' *dd add $0.75 cwt for boxing *ee 4 tons & up *ff 26 ga *gg add $2 cwt boxing; $0.75 cwt on skids *hh Theoretical wt for 48" x 96"; 50.4-lb. per sh. *ii 300-bag lots *jj per 100-lb bag *mm Theoretical wt: 19.7-lb per sh. *nn Deliv. warehouse means *oo ¼" O.D. *pp Incl 10% sales tax

Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES:

- June 7—Cement, Aggregate, Ready-mixed Concrete, Asphalt
- June 14—Iron and Steel Products, Pipe
- June 21—Wood Products, Glass, Explosives, Chemicals
- June 28—Clay Products, Lime, Plaster, Paint, Roofing

BUILDING BOARD & LATH AND INSULATION—DELIVERED TRUCKLOAD LOTS

	GYPSUM PLASTER BOARD tapered edge per Msq ft ½"	⅝"	GYPSUM BOARD LATH plain or perf per Msq ft ⅜" x 16" x 48"	GYPSUM SHEATHING tongue & groove per Msq ft ½" x 2' x 8'	FIBER BOARD SHEATHING asph impreg & coat per Msq ft ½" sq ed	½" T&G	FIBER BOARD INSULATION sq edge, paint per Msq ft ½"	MINERAL WOOL INSULATION† loose, per 40-lb bag a	3" batts per M sf a	GLASS FIBER INSULATION† loose, per 40-lb bag a	3" batts per M sf a	ALUMINUM FOIL 60¢ Kraft 1 side foil per roll of 250 s. f.	Expansible Blanket 2 layers foil per Msq. ft.
Atlanta	$75.00	$65.00	$45.00	$75.00	$77.00	$127.00	$77.00	$1.08	$75.00	$1.45[b]	$85.00	.....	.....
Baltimore	51.25[f]	44.75[f]	32.55[f]	55.00[f]	65.00[f]	108.50[f]	69.00[f]	1.30	66.50	1.60	45.00	$4.00[g]	$33.50
Birmingham	70.00	65.00	51.11	82.00	80.00	134.00	79.00	1.40	70.00	1.60	75.00	3.39[g]	.....
Boston	56.00[m]	46.50[m]	33.00[m]	52.00[m]	64.00[m]	109.00[m]	79.00[kn]	1.45	75.00	.....	52/58	6.00	55.50
Chicago	65.00	52.00	43.00	66.00	80.00	120.00	80.00	1.55	80.00	.....	63/65[bb]	5.25[s]	.....
Cincinnati	46.40[w]	41.60[w]	30.80[w]	49.81[w]	67.50[w]	120.00[w]	70.00[w]	1.25	60.00	1.25	73.50	2.84	50.00[w]
Cleveland	60.50	55.00	40.00	65.00	70.00	111.00	70.00	1.35/1.80	70.00	1.60[oo]	80.00[oo]	17.50[s]	80/55
Dallas	58.00	55.00	42.50	65.00	73.50	132.50	70.00	1.90	65.00	1.35	65.83	4.25	.....
Denver	62.00	54.50	41.00	62.00	75.90	126.00	74.90	.....	71.00[u]	1.20[s]	55.00	11.00[r]	21.00
Detroit	55.00	48.00	36.00	57.50	68.50	98.00	67.50	.....	.....	1.95[b]	83.00	.....	.....
Kansas City	55.00	55.00	40.00	65.00	72.00	120.00	75.00	1.40	80.00	1.40	80.00	11.24[dt]	19.44
Los Angeles	60.00	52.50	0.225[z]	60.00	71.87	121.25	80.00	.....	83.00	1.35[s]	64.00	4.20[g]	.....
Minneapolis	80.00	70.00	0.40[z]	80.00	70.00	140.00	78.00	1.80	80.00	1.80	80.00	6.50	.....
Montreal	55.00	48.00	36/39	55.00	60.00	.....	62.00	1.10	60.00	1.10	60.00	20.00[e]	50.00
New Orleans	55.00	48.00	45.00	70.00	75.00	125.00	72.50	1.78	68.00[oo]	.....	.....	.....	.....
New York	52.00	45.50	35.00	53.00	60.00	109.00	70.50	1.55	67.00	1.90[s]	72.00	5.20	48.80[cc]
Philadelphia	50.00	48.00	34.00	48.50	67.50	105.00	49.20	.....	63/70	.....	70/75	5.50/6	34.50/44.50
Pittsburgh	65.00	55.00	40.00	68.00	65.00	105.00	80.00	1.90	72.00	1.90	72.00	4.10	.....
St. Louis	55.00	55.00	40.00	65.00	77.00	115.00	77.50	1.80	80.00	1.65	62.00	4.75[s]	.....
San Francisco	52.00[z]	44.75	0.34[z]	56.00	59.00	99.00	58.00	1.80	68.50	1.55	66.50	4.62	53.50
Seattle	65.50	57.50	46.50	63.50	72.50	122.00	71.50	1.75[y]	81.00	1.90[aas]	54.00[as]	4.25[g]	46.50
Toronto	61.00	50.00	40.00	64.50	75.00	.....	.....	0.90	51.00	.....	51.00	16.10[g]	42.65

[a] for hand packing [b] per 30¢ bag [c] carloads [d] 40¢ kraft paper [e] 20¢ sq ft bag, 4" thick [f] full trailer loads [g] 80¢ kraft paper backing [h] LCL [i] flameproof $75.00 [m] 10 ton quantities [n] distributor's siding [o] per Msf roll [p] per sf [r] per cwt [s] per 35¢ bag [t] per M sq ft [w] fob city [x] per sq. yd. [y] 25¢ bag [z] 32¢ bag [aa] fob warehouse [bb] 2" [cc] in 250 sf rolls, of 18", 20", or 24" width.

HOURLY WAGE RATES—Base rate + fringe benefits

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const
Atlanta	$3.25	$2.70	$2.95	$2.70	$2.875	$3.00	$3.05+10¢[d]	$1.40	$1.40
Baltimore	3.45+10¢[d]	2.95+7½¢[f]	3.50+7½¢[f]	2.70/2.95+10¢[d]	3.25+7½¢[f]	3.30	3.20+7½¢[f]	1.60+7½¢[f]	1.60+7½¢[f]
Birmingham	3.50	2.60	2.925+7½¢[h]	2.42	2.82	3.175	3.05+7½¢[h]	1.50	1.60
Boston	3.50+10¢[d]	3.05+10¢[d]	3.40+7½¢[h]	3.40	3.25+20¢[f]	3.20+12¢[f]	3.20+10¢[d]	2.30+7¢[f]	2.30+7¢[f]
Chicago	3.62½+7½¢[d,f]	3.275+10¢[e]	3.425+7½¢[h]	3.25+.5¢[e,f]	3.47+23¢[e]	3.48+21¢[f]	3.37+22¢[ee,f]	2.37½+7½¢[f]	2.37½+7½¢[f]
Cincinnati	3.45	3.15	3.20+7½¢[h]	2.925/3.175	3.225	3.375+.5¢[g]	3.35+9½¢[f]	2.20	2.10
Cleveland	3.55+10¢	3.575	3.325+7½¢[h]	3.475	3.475	3.425	3.375+10¢[d]	2.825	2.65
Dallas	3.625	2.875	2.95	2.875+7½¢[h]	3.437	3.00	3.105+8¢[bb]	1.50	1.50
Denver	3.50	2.975	3.00+7½¢[f]	2.93	3.30+7½¢[f]	3.00	3.05+15¢[f]	2.00	2.00
Detroit	3.53+20¢[ee]	3.20+20¢[e]	3.325+15¢[f]	3.30+15¢[ee]	3.51+24¢[ei]	3.50+30½¢[ff]	3.295+22½¢[h]	2.50+15¢[ee]	2.55+10¢[e]
Kansas City	3.70	2.90	3.075	3.095	3.375	3.20+13¢[f]	3.15+7½¢[f]	2.155	2.18
Los Angeles	3.50[ff]	3.00+10¢[d]	3.25+7½¢[h]	2.81+10¢[f]	3.625+12½¢[f]	3.45	3.425+10¢[d]	2.30+7½¢[f]	2.30+7½¢[f]
Minneapolis	3.425	3.00	3.17	2.95	3.05+23¢[ee]	3.12[n]	3.00+20¢[e]	2.25	2.25
New Orleans	3.25	2.675	2.90+7½¢[h]	2.80	2.80	3.025+7½¢[h]	3.00+10¢[e]	1.455	1.475
New York	3.80+35¢[ee]	3.55+28½¢[bl]	3.85+32¢[e]	3.80+30¢[f]	3.85+50¢[f]	3.50+38¢[ee,f]	3.75+34¢[bl,f]	2.50+20¢[f]	2.50+20¢[f]
Philadelphia	3.75+17¢[f]	3.385[ff]	3.55+18¢[f]/3.15½/3.90½+10¢[f]		3.65+15¢[f]	3.77+15¢[ee]	3.75+11½¢[e]	2.10[ff]	2.40[ff]
Pittsburgh	3.60+17½¢[e]	3.20+7½¢[f]	3.30+7½¢[h]	3.35+7½¢[h]	3.40+17½¢[ee]	3.50	3.45+7½¢[f]	2.10+7½¢[f]	1.98+10¢[d]
St. Louis	3.75+19¢	3.25+7½¢[f]	3.25+7½¢[h]	3.325	3.425+10¢[e]	3.50+25¢[e]	3.45+21¢[f]	2.30+7½¢[f]	2.30+7½¢[f]
San Francisco	3.75+12½¢[e]	3.06+10¢[e]	3.25+10¢[e]	2.86+10¢[e]	3.56+10[e]	3.22½+20¢[f]	3.20+36¢[k]	2.325+10¢[e]	2.325+10¢[e]
Seattle	3.40+10¢[d]	2.80+10¢[d]	3.07+10¢[d]	2.90+10¢[d]	3.15+10¢[d]	3.16+13½¢[f]	3.10+21¢[f]	2.37+10¢[d]	2.37+10¢[d]
Montreal	2.10+14¢[t]	1.90+14¢[t]	2.00+14¢[t]	1.80+14¢[t]	2.12+18¢[t]	2.10+18¢[t]	2.12+18¢[t]	1.30+10¢[t]	1.30+10¢[t]
Toronto	2.45+10¢[oo]	2.30+11¢[oo]	2.30+9¢[oo]	2.35+9¢[oo]	2.45+16¢[oo]	2.65+10¢[oo]	2.44+10¢[oo]	1.35+6¢[oo]	1.35+6¢[oo]

ENR Skilled Average (Bricklayers, Carpenters, Iron workers): **$3.363.** **ENR Common Average $2.165**

* Cost of living bonus now included in basic wage. † 8% fringe benefits. [oo] 4% vacation fund. [a] 6 hr. day. [b] 7 hr. day. [c] 3% vac. stamp fund plus 7½¢ WF for bricklayers; 4% VF for electricians plus 8¢ WF, 1% PF. [d] 10¢ H&WF. [e] 10¢ VF. [f] 6% WF. [g] 11½¢ WF. [h] $2.85 homes & housing plus 7½¢ WF. [i] 17¢ WF. [j] 10½¢ hr. WF. [k] 7½¢ hr. WF. [l] 14% VF. [m] 5¢ hr. WF. [n] Plus 16% fringe benefits on gross wage ea. yr. [o] 10¢ PF. [p] 3% WF, 3% PF. [q] 10¢ ins; 6% vac. and holiday pay. [r] 4% WF and 20¢ PF. [s] 5% W&PF, 4% VF, 1% NC, 6 PH. [t] 7½¢ H&WF. [u] 1½% PF. [v] 10¢ WF. [w] Negotiating. [x] 5¢ VP. [y] 23¢ WF. [A] 15¢ WF, 15¢ PF, 20¢ B.F. [C] 15¢ WF [D] 10¢ H&WF, 5¢ organ. [E] 6% WF, plus travel pay per day. [F] Plus $4 per day Annuity contrib. [G] 3¢ Prom. [H] 7¢ WF, 6% VF. [I] 15¢ H&WF, 5¢ for Advtg. [J] 5% WF, 6 PH. [K] 11¢ WF, 12½¢ VF, 10¢ PF. [L] 3% WF, 3% PF, 2% VF, 1% EF. [M] 7½¢ PF. [N] 1% WF. [O] 10¢ WF, 1% PF. [P] 10¢ hosp. ins.; 5¢ vac. [Q] 1 drum, 2 drums 3.40/3.55 + 10¢[e]R 12¢ WF and 1¢ apprentice [S] 12½¢ H and WF. [T] 21¢ H, W & VF. [U] 7½¢ WF, 4% VF. [V] 5% WF, 3% PF. [W] 2% F. [X] 6¢ VF, & 7½¢ H & WF. [Y] 7¢ H & WF. [Z] 9½¢ WF. [aa] 7¢ WF, 15¢ PF. [bb] 8¢ WF. # eff. 6/1 56 ## eff. 5/1. *‡ eff. 6/4.

	Truck drivers 1½ T	Truck drivers —4 cy	Truck drivers +4 cy	Tractor Operators incl. bulldozers 34-49 hp	Tractor Operators incl. bulldozers 70-100 hp	Tractor Operators incl. bulldozers 100 & over	Tractor scraper 15-16 cy	Power cranes & shovels ½ cy	Power cranes & shovels ¾ cy	Motor grader oper	Air comp oper	Air tool oper
Atlanta	$1.50	$	$	$2.425	$2.425	$2.425	$2.425	$2.95	$2.95	$2.425	$2.20	$1.60
Baltimore	1.60+7½¢[e]	1.75+7½¢[e]	1.85+7½¢[e]	2.85/3.00[b]	2.85/3.00[b]	2.85/3.00[b]	2.85/3.00[b]	3.40/3.55+10¢[e]	[b] 3.40/3.55+10¢[e]	[b] 2.85/3.00[b]	2.85/3.00[b]	2.25
Birmingham	1.50	1.85[ff]	1.92[ee]	2.56	2.56	2.56	2.70	2.70	2.70	2.61	2.285	1.65
Boston	2.10[e]	.....	.....	3.025[d]	3.025[d]	3.025[d]	3.025[d]	3.40	3.40	3.40	2.95	2.22[e]
Chicago	2.08+12½¢[ee]	.....	.....	2.85+.5¢[e]	3.00+.5¢[e]	3.05+.5¢[e]	2.85+.5¢[e]	3.45+.5¢[e]	3.45+.5¢[e]	2.95+.5¢[e]	2.95+.5¢[e]	.....
Cincinnati	2.20[ee]	2.30[ee]	2.40[ee]	2.925	2.925	2.925	2.925	3.175	3.175	3.175	3.175	3.175
Cleveland	2.50	2.50	2.50	3.225	3.225	3.225	3.225	3.475	3.475	3.225[k]	3.10	3.10
Dallas	1.50	1.50	1.50	1.50/2.625[d]	1.50/2.625[d]	1.50/2.625[d]	1.50/2.625[d]	1.50/2.625[d]	1.50/2.625[d]	1.50/2.625[d]	1.50/2.00[d]	1.50/2.00[d]
Denver	2.15	2.15	2.25	2.15	2.76	2.76	2.76	2.93	2.93	2.76	2.76	2.35
Detroit	2.45	2.45	2.45	3.30+10¢[e]	3.30+10¢[e]	3.30+10¢[e]	3.30+10¢[e]	3.30+10¢[e]	3.30+10¢[e]	3.30+10¢[e]	3.025+10¢[e]	2.68+20¢[e,ee]
Kansas City	2.115[e]	2.115[e]	2.19[e]	2.30	2.85[e]	2.85[e]	2.85[e]	3.095	3.095	2.71	2.85[f]	2.24
Los Angeles	2.405+7½¢[e]	2.405+7½¢[e]	2.435+7½¢[e]	2.90+10¢[e]	2.90+10¢[e]	2.90+10¢[e]	3.24+10¢[e]	3.06+10¢[e]	3.06+10¢[e]	3.06+10¢[e]	2.49+10¢[e]	2.51+7½¢[e]
Minneapolis	2.25	2.25[e]	2.40[e]	2.62	2.85[e]	3.07[e]	2.85	3.07[e]	3.33[e]	2.63	2.82	2.35
New Orleans	1.575	1.575	1.575	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.15	1.575
New York	2.12½+13¢[ee]	2.75+14¢[bl]	2.75+14¢[bl]	3.17½+25¢[ee]	3.17½+25¢[ee]	3.17½+25¢[ee]	3.30+26¢[ee]	4.05+32¢[ee]	4.05+32¢[ee]	3.30+26¢[ee]	3.30+26¢[ee]	2.90+14½¢[ee]
Philadelphia	——	1.925/2.15+7½¢[e]	——	——	3.15½/3.90½+10¢[e]	——	3.15½/3.90½+10¢[e]	——	3.15½/3.90½+10¢[e]	3.15½/3.90½+10¢[e]	2.97½+10¢[e]	2.13½+10¢[e]
Pittsburgh	2.20+7½¢[e]	2.20+7½¢[e]	2.20+7½¢[e]	2.87½+7½¢[e]	3.20+7½¢[e]	3.27½+7½¢[e]	3.25+7½¢[e]	3.35+7½¢[e]	3.35+7½¢[e]	3.25+7½¢[e]	3.35+7½¢[e]	2.20+7½¢[e]
St. Louis	2.30+7½¢[e,cc]	———	———	3.325[kk]	3.325[kk]	3.325[kk]	3.325[kk]	3.325[kk]	3.325[kk]	3.325[kk]	2.775[kk]	2.775[kk]
San Francisco	2.32½+10¢[e]	2.32½+10¢[e]	2.465+10¢	3.095¢+10¢[e]	3.095¢+10¢[e]	3.095¢+10¢[e]	3.095¢+10¢[e]	3.425¢+10¢[e]	3.425¢+10¢[e]	3.255¢+10¢[e]	2.705¢+10¢[e]	2.30+10¢[e]
Seattle	2.63+7½¢[e]	2.63+7½¢[e,dd]	2.82+7½¢[e,ee]	2.78+10¢[e]	2.95+10¢[e]	2.95+10¢[e]	2.95+10¢[e]	3.36+10¢[e]	3.36+10¢[e]	3 10+10¢[e]	2.78+10¢[e]	2.52+10¢[e]
Montreal	1.30+10¢[ll]	1.30+10¢[ll]	1.30+10¢[ll]	1.73+14¢[ll]	1.73+14¢[ll]	1.73+14¢[ll]	1.73+14¢[ll]	1.99+16¢[ll]	1.99+16¢[ll]	1.73+14¢[ll]	1.80+15¢[ll]	1.60+15¢[ll]
Toronto	1.65+6¢[oo]	1.45+6¢[oo]	1.65+7¢[oo]	1.90+8¢[oo]	1.90+8¢[oo]	1.90+8¢[oo]	1.90+8¢[oo]	2.35+10¢[oo]	2.35+10¢[oo]	———	2.05+8¢[oo]	2.05+8¢[oo]

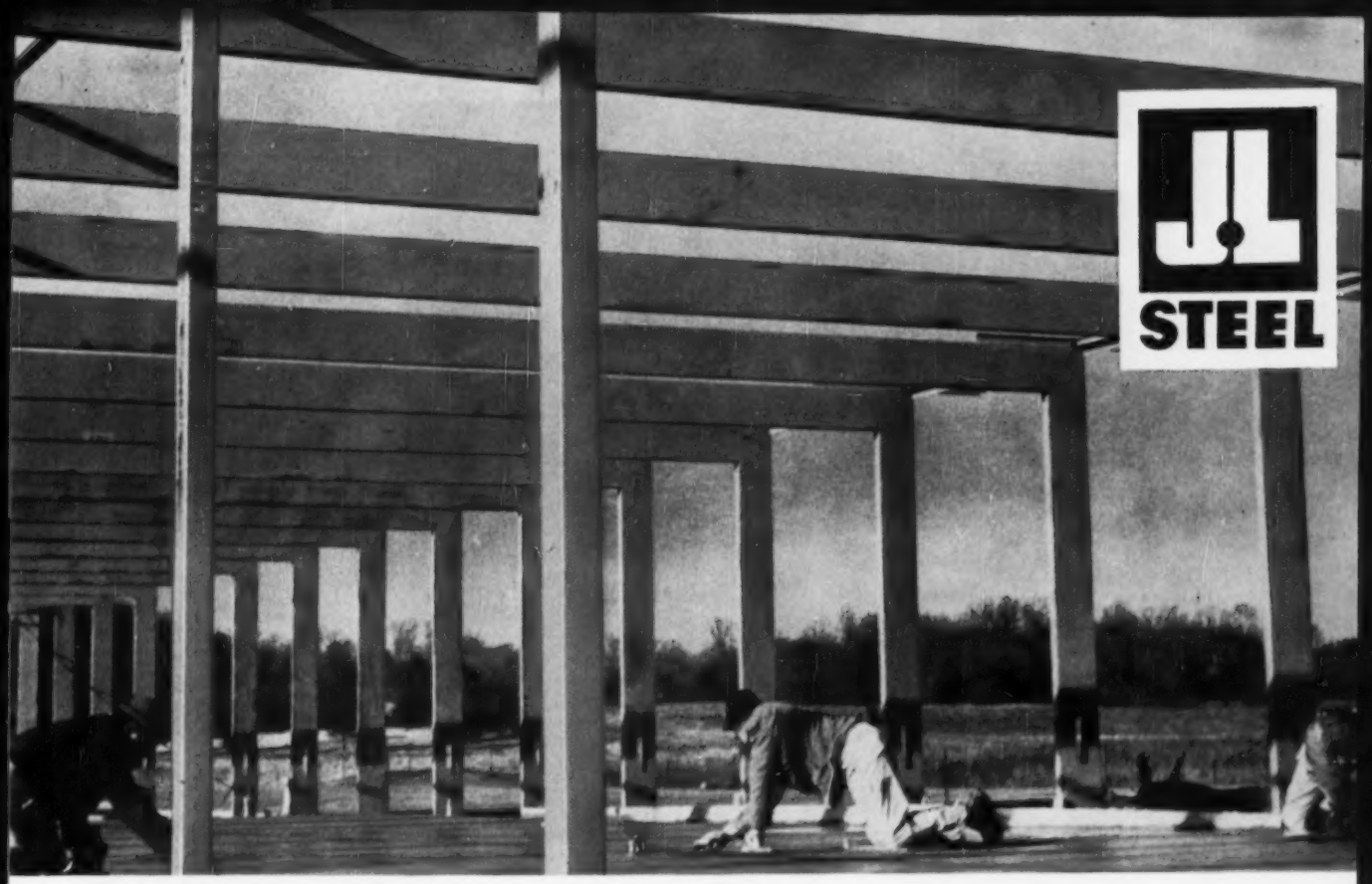
[a] 8¢/hr HWF [b] lower rates, straight time, other broken [c] 2-axle; 10-wheel $2.15; Euclid $2.45 [d] Intermediate [e] bldg constr; highway $2.165 [f] less than 2-t [g] blade [h] scoop, bldg [i] scoop, road [j] plus $2 pd by employer for hosp. death benefits to family [k] bldg constr; steel constr $3.475 [l] higher rates are union, other taken from min wage scale approved by County Commissioners Court [m] 10¢ H&WF [n] flatbed [o] under 10 cy [p] over 10 cy [q] over 80 hp [r] blade grader [s] form and subgrade [t] single [u] 7½¢ HWF [v] up to 6 cy [w] 6-8 cy [x] cat oper [y] up to 3½ cy [z] 3½ cy & over [aa] plus approx $5.30 per wk W&PF [bb] 3% WF, 2% PF, 11 PH [cc] 5% WF & 3% PF [dd] up to 5 cy [ee] 5 cy & over [ff] over 1½ T but not incl 3 [gg] over 3 but not incl 5 tons [hh] excavating [ii] 4% VP [jj] 12¢ H, W & PF [kk] 7½¢ WF included in base pay [ll] 8% fringe benefits [mm] 10¢ H & WF, 10¢ insurance [nn] 8 cy or less; 8-16 cy $2.90; 16-25 cy $3.15 [oo] Plus $2.25/wk WF [pp] 2-5 T $1.70 [rr] 12¢ WF [ss] 9% WF. # eff. 6/1.

MEXICO CITY PRICES

In Pesos, F.o.b. City		Feb. '56	Mar. '56
Common Wages—Building (8 hr. day) (Peons)	av. per hr.	1.38	1.38
Common Wages—Heavy Const. (8 hr. day) (Peons)	av. per hr.	1.38	1.38
Skilled Labor Wages			
Carpenters (8 hr. day) 1 cl.	av. per hr.	2.44	2.44
Bricklayers (8 hr. day) 1 cl.	av. per hr.	2.44	2.44
Struct. Iron Workers (8 hr. day)..... Remachadores.	av. per hr.	3.75	3.75

		Feb. '56	Mar. '56
Struct. Steel, Shapes			
3"-15" x 12 meters..... # fob Monterrey	per metric ton	1564.34[#]	1564.34[#]
Reinf. Steel, Corr. Rods			
¼" x 11 meters	per ton	1650.00	1650.00
⅜" x 11 meters	per ton	1650.00	1650.00
½" x 11 meters	per ton	1650.00	1650.00
⅝" x 11 meters	per ton	1650.00	1650.00
¾" x 11 meters	per ton	1650.00	1650.00
⅞" x 11 meters	per ton	1650.00	1650.00

Gravel truck load of 3½ cu. meters		Feb. '56	Mar. '56
Blue Gravel	per tr. load	70.00	70.00
Rose Gravel	per tr. load	65.00	65.00
Cement, Std. Port. (Tolteca)	per ton	200.00	200.00
Lumber			
3rd Class Pine	per M ft.	1900.00	1900.00
1st Class Pine	per M ft.	2750.00	2750.00
2nd Class Pine	per M ft.	2300.00	2300.00



RIGID STEEL BENTS FORM BASIC FRAME OF WHEATLEY SCHOOL, EAST WILLISTON, LONG ISLAND

Boxed and Exposed J&L JUNIOR CHANNELS give classrooms clean, fresh appearance

Architect W. Frank Bower, Jr., of La Pierre, Litchfield & Partners, New York, has employed 130 tons of Junior Channels in the new two million dollar Wheatley School (East Williston, Long Island Junior-Senior High School). The 12″, 10.6# Junior Channels are boxed to make rigid bents forming the basic frame of the classroom buildings.

The bents were fabricated in two sections by De Voe Iron Works, Inc. of Long Island City, then trucked to the job. Erection went fast. Mr. Stephen J. De Voe, Jr. reported that it required only five hours to erect the 56 bents in one 232′ x 71′-4″ building.

Mr. Bower summed up the advantages of using J&L Junior Channels in the school's unique design by saying:

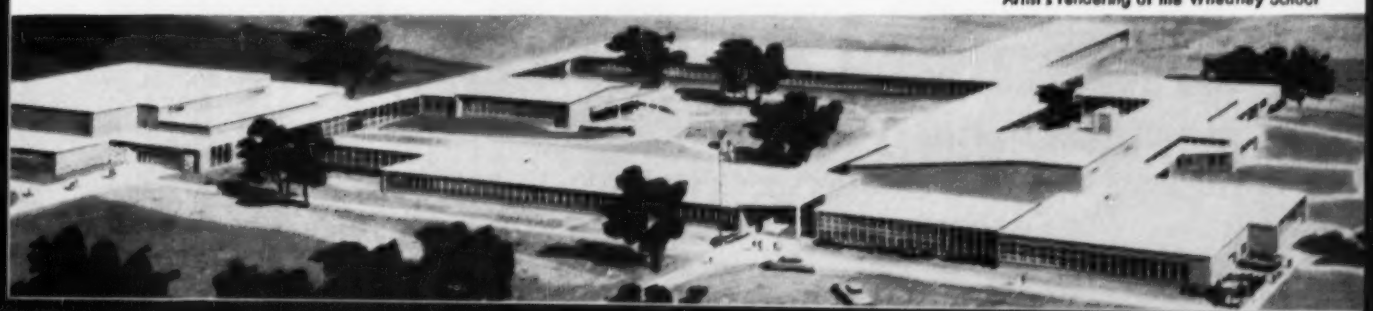
"The exposed structural steel bents or rigid frames are the basic frame of the building. This was done to take advantage of insulating cement and wood fiber structural plank which has excellent acoustical properties. In addition we avoid the use of hung ceilings. As a result we estimate savings of $40,000 to $50,000 on this $2,000,000 building.

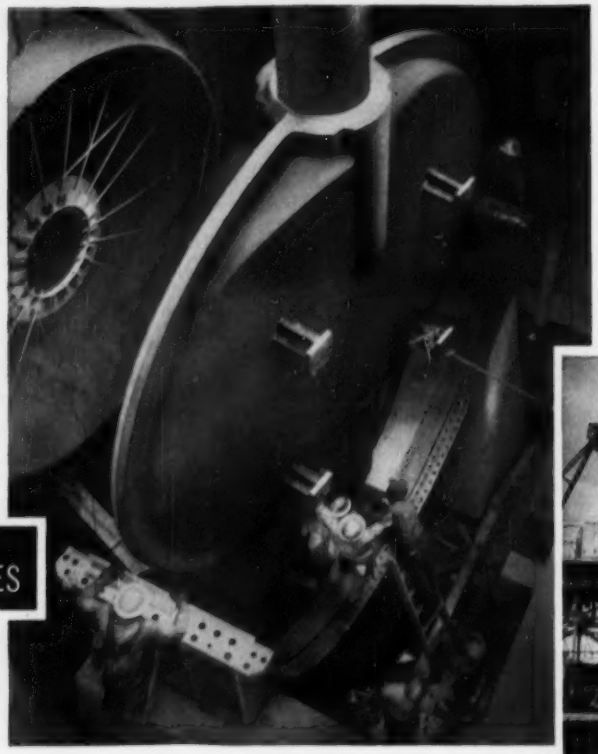
"This type of construction eliminates the confined air space between roof and hung ceiling which, unless mechanically ventilated, stores hot air to reflect heat on the classrooms in the warmer months. The rigid frames give a cleaner, fresher look than alternate materials. We prefer them as being more interesting than the usual flat hung ceiling. They also give us a chance to introduce more color into the classrooms."

If you're designing light occupancy buildings, ask us for complete information about J&L Junior Channels. Take advantage of the strength of these light weight hot rolled sections, and their adaptability to a wide range of architectural design.

Jones & Laughlin
STEEL CORPORATION · PITTSBURGH

Artist's rendering of the Wheatley School





An 18' butterfly valve disc is shown here during installation at Blakely Mountain in Arkansas. Note the streamlining of the welded disc.

Photos – Vicksburg District, Corps of Engineers

SMS
BUTTERFLY VALVES

SMS VALVE SEALS CUT LEAKAGE TO MINIMUM

SMS Butterfly Valve seals cut leakage to a minimum. Disc seals are adjustable from either inside or outside, whichever is specified. Specially-developed SMS trunnion seals are essentially drop-tight.

With inside adjustment, the disc may be seated directly on the plate steel housing, as at Blakely Mountain, illustrated above, and as at Fort Peck, Montana. Here a 16 ft. dia. valve, recently tested after 14 years of service, had *less than ½ gpm leakage.*

SMS welded discs and housings assure greater freedom from the material defects of castings and permit more economical construction. The photo illustrates the streamlining possible with welded steel plate construction. This holds head losses and turbulence to a minimum.

SMS has designed and built butterfly valves in diameters from 3 inches to 18 feet, for service with operating heads up to 750 feet. For the assurance that your hydraulic equipment will meet or exceed specifications, you can rely on over three-quarters of a century of experience that SMS offers. For full information on butterfly valves, hydraulic turbines and accessories, write S. Morgan Smith Company, York, Pennsylvania.

Hydraulic Turbines
Pumps
Gates & Hoists
Trash Rakes
Accessories

HYDRODYNAMICS

Rotovalves
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Butterfly Valves
Free-Discharge Valves
Controllable-Pitch Ship Propellers

S. MORGAN SMITH CO.

AFFILIATE: S. MORGAN SMITH, CANADA, LIMITED, TORONTO

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, L. M. FELIX, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
June 5 Massachusetts
STREETS AND ROADS
June 4 Connecticut June 5 Massachusetts

BUILDINGS—BA

▲ **Mass., Amherst**—PHYSICAL EDUCATION—BA 6/15—State, University of Mass., c/o Div. Bldg. Constr., 38 Chauncy St., Boston, U-603 No. 1, women's physical education bldg., University of Mass. $1,681,000. Plans deposit $100, refundable. Perry, Shaw, Hepburn & Dean, 31 Sta. James Ave., Boston, archts. CD 1/5, under LB.

▲ **Mass., Framingham**—SCHOOL—BA 6/15—Town, School Bldg. Comn., c/o supt. Schools, Union Ave., high school, Walnut St. $1,800,000. Plans deposit 150, refundable, Samuel Glaser Assoc., 105 Newbury St., Boston, archts. CD 3/6, under LB.

HEAVY CONSTRUCTION—LB & CA

▲ **Baylor Constr. Co.**, 210 E. 40 St., New York, N. Y. CA $3,135,000, est. $3,500,000. sewage treatment plant alterations, repairs, Field's Point Plant, PROVIDENCE, R. I. City, Purch. Dpt., City Hall, Providence, R. I. Bids Apr. 30. CD 5/2, under LB.

▲ **CONNECTICUT**—State Hy. Comn., State Office Bldg., Hartford,

D. V. Frione & Co., Inc., 87 Foxon St., New Haven, Conn., LB $2,354,071, est. $2,000,000 (8 bidders) b. conc. 10,896 lin. ft., incl. grade separation structure at Sta. 72 plus 0, Proj. 316B-01, West Haven and New Haven. Bids May 21. CD 5/4.

BUILDINGS—LB & CA

▲ **E. J. Pinney Co., Inc.**, 220 Dwight St., Springfield, Mass. LB $2,499,500. HIGH SCHOOL, GREENFIELD, MASS. Town, c/o Supt. Schools, 125 Federal St., Greenfield, Mass. Bids May 23. CD 5/1.

▲ **City, School Comn.**, Mayor Fred I. Lamson, chn., mayor's office, Malden, Mass., rejected bids Apr. 16. Ayers School and Daniels Elementary School addn., Sylvan and Daniels Sts., MALDEN, MASS. Est. $2,000,000. CD 4/19, under LB.

▲ **George A. Fuller Co.**, 597 Madison Ave., New York, N. Y., CA $3,500,000, HOME OFFICE, facing Sigourney St. and Farmington Ave., HARTFORD, CONN. The Aetna Life Insurance Co., 151 Farmington Ave., Hartford, Conn. CD 5/8.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
June 5 Maryland
STREETS AND ROADS
June 5 Maryland June 6 Delaware
June 7 New York June 12 New Jersey
June 15 Pennsylvania

BUILDINGS—BA

▲ **N. Y., New York**—HOUSING—BA 6/5—New York City Housing Auth., 299 Broadway, Zone 7, (1) foundations and general constr. (2) heating and ventilating (3) electric work and (4) plumbing for Senator Robert F. Wagner Sr. Houses (Proj. No. NY-5-24) Sect. II, incl. Bldgs. Nos. 14 to 22 (inclusive) located in area bounded generally by E. 124 St., First Ave., E. 120 St. and Second Ave. (but exclud. an area in southeast corner which is to be developed by Bd. of Educ.), Manhattan. Plans deposit $75; furnishing and erecting elevators, Plans deposit $25. Extended date. CD 5/16.

▲ **Pa., McKeesport**—HOSPITAL—BA 6/7—McKeesport Hospital, Fifth Ave., 7 story, brick, concrete, steel hospital, $3,500,000. Plans deposit $80, Harry J. Seeley, 55 Hazel Dr., Mount Lebanon, Pittsburgh, archt. CD 4/16/53.

▲ **N. Y., New York**—SCHOOL—BA 6/13—Director Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, new P. S. 175 Manhattan West 134 and 135 Sts., between Lenox and Seventh Aves., $2,086,400. Plans deposit $25 for general constr., $10 each for plumbing and drainage, heating and ventilating, electrical work and lighting fixtures. Extended date. CD 5/9.

▲ **Pa., Wilkes-Barre**—INSTITUTION—BA 6/13—General State Auth., 18 and Harr Sts., Harrisburg, institution for defective delinquents, incl. power plant, sewage sys., water distr. $9,000,000. Plans deposit $100. Extended date. Alfred Hopkins Assoc., 292 Madison Ave., New York 17, N. Y., and Lacy Atherton & Davis, Hotel Sterling, Wilkes-Barre, archts. CD 5/17.

▲ **N. Y., Fort Jay**—HOUSING—BA On Or About 8/14—U. S. Eng., 111 E. 16 St., New York, Zone 3, construct and finance Capehart Housing. $1,000,000-$3,000,000. Extended date. Kelly & Gruzen, 80 Fifth Ave., New York, Zone 10, archts. CD 4/17.

▲ **N. J., Fort Monmouth**—HOUSING—BA On Or About 8/14—U. S. Eng., 111 E. 16 St., New York 3, N. Y. construct and finance housing. $1,000,000-$3,000,000. S. J. Kessler & Son, 551 Fifth Ave., New York, Zone 17, N. Y. archts.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—John W. Johnson, State Supt. P. Wks. Dpt., The Gov. Alfred E. Smith State Office Bldg., Albany,

N. Y.—**Kendall Roadways, Inc.**, 1373 Williams St., Buffalo 21, N. Y. CA $674,504, est. $723,000. 3.21 mi. city of Olean, south Union St., Olean-Knapp Creek, Pt. 1, SH 9092, FAC. 56-16, FARC. 56-79, Cattaraugus Co.;

N. Y.—**Serafini Constr. Co., Inc.**, Rd. No. 1, Conklin Rd., P.O. Box 265, Binghamton, N. Y. CA $1,389,363, est. $1,803,000. 10.84 mi. Whitney Point-Greene, Pts. 1 and 2, Hy. No. 206-1-1 and 206-2-1, Whitney Point-Greene, Pts. 1A and 2A, SH 8489-9243, FARC. 56-93, FAS. SH 56-14, Broome and Chenango Counties;

N. Y.—**The Lane Constr. Corp.**, 965 E. Main St., Meriden, Conn. CA $2,112,925, est. $2,912,000. 8.39 (1.54 Acc.) mi. Bloomingburg-Monticello, Pt. 2, S.H. 5457, Bloomingburg-Monticello, Pt. 1, S.H. 5510-5510A, FARC 56-8P, Sullivan Co. Grand total $4,176,792. CD 4/13, under LB.

▲ **Blount Bros. Constr. Co.**, Bell Bldg., Montgomery, Ala. LB $9,930,000. (12 bidders) constr. rotating arm and maneuvering basin, David W. Taylor Model Basin, CARDEROCK, MD. Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C. Bids May 23. CD 3/8.

▲ **James McHugh Co.**, 6449 South Park Ave., Chicago 37, Ill., LB $6,533,000. (4 bidders) sewage treatment plant addn., WASH., D. C. D. C. Govt., Dpt. Sanitary Eng., 499 Pa. Ave. N.W., Wash., D. C. Bids May 17. CD 5/11.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	**Middle West**
Middle Atlantic	**West of Mississippi**
South	**Far West**

PROPOSED WORK

Water Supply	**Public Buildings**
Sewers, Waste Disposal	**Mass Housing**
Bridges	**Commercial Buildings**
Streets & Roads	**Industrial Buildings**
Earthwork, Waterways	**Unclassified**

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	**Federal Government**
▲	**Project of $1,000,000 or over.**
ENR	**Engineering News-Record**
CD	**Construction Daily**

For additional reports see Construction Daily.

BUILDINGS—LB & CA

▲ **Charles A. Newbergh & Son**, 4 Spencer Place, Scarsdale, N. Y. CA Est. $2,000,000. 90 HOUSES on 23 acre tract on Hartsdale Ave. and Dobbs Ferry, HARTSDALE, N. Y. Hilltop Farms Homes, c/o contractor.

▲ **Bureau Contracts & Accounts**, The Gov. Alfred E. Smith State Office Bldg., Albany, N. Y. rejected bids Mar. 15, MEDICAL-SURGICAL CENTER (Bldg. No. 86) Gowanda State Homeopathic Hospital, HELMUTH, N. Y. New bids May 24. LB $6,638,000. CD 3/21, under LB.

▲ **Wenwood Building Organization**, c/o Stanley Shaftel, archt., 166-21 90 Ave., Jamaica, N. Y. Owner Builds. $2,400,000. 96 HOUSES on 32 acre tract south of Merrick Rd. and east of Rte. 107, MASSAPEQUA, PARK, N. Y.

▲ **Euclid Contg. Corp.**, 101 Park Ave., New York 17, N. Y. CA Est. $3,000,000. 6 story MUSEUM, cylindrical with hollow center on Fifth Ave. blockfront from 88 to 89 Sts., NEW YORK, N. Y. Solomon R. Guggenheim Foundation, 24 E. 54 St., New York. Frank Lloyd Wright, Spring Green, Wis., archt. CD 10/14/45, under CA.

▲ **Vermilya-Brown Co., Inc.**, 100 E. 42 St., New York 17, N. Y. CA $7,500,000. HOSPITAL, NURSING SCHOOL, SHELTER and CONVENT, Misericordia Hospital, 233 St. and Bronx Blvd., NEW YORK, N. Y. Sisters of Misericorde, 531 E. 86 St., New York, N. Y. CD 5/23, under LB.

▲ **Westbury Hills Homes**, c/o Max Rosenfeld, archt., 89-31 161 St., Jamaica 32, N. Y. Owner Builds. $2,000,000. 92 HOUSES on tract at Old Country Rd. and Westbury Dr., WESTBURY, N. Y.

▲ **Clarkway Plaza, Inc.**, 1221 St. George Ave., Roselle, N. J. Owner Builds. $2,000,000. SHOPPING CENTER, Central Ave. on portion of Grube Estate near Garden State Parkway Interchange, CLARK, N. J. Erwin Gerber, 11 Commerce St., Newark, N. J., archt.

▲ **Cranford-Sheraton Homes, Inc.**, Short Hills, N. J. Owner Builds. $1,600,000. 62 HOMES, Brookside Pl., adjoining Union College Campus, "Campus Estates", CRANFORD, N. J. Louis M. Steuber, 2092 Morris Ave., Union, N. J., archt.

▲ **David Levy**, Highland Ave., Orange, N. J., Owner Builds, $2,000,000. 20 DWELLINGS, Springfield Ave., "College Estates", CRANFORD, N. J. Katz & Metsky, 875 Broad St., Newark, N. J., archts.

▲ **La Rosa Constr. Co.**, 65-17 Fresh Meadow Lane, Flushing, N. Y., CA, $3,000,000. 200 HOUSES, Aurora Hills Homes, Randolph Twp. near Mount Freedom and DOVER, N. J. Nicholas Spadia, 82-11 Utopia Parkway, Jamaica, N. Y., and Nicholas La Rosa, 690A 186 Fresh Meadow Lane, Flushing, N. Y. Henry Vreeland, 4 Court St., Morristown, N. J., archt.

▲ **Martin Hadshuh & Entin**, c/o owner, CA, $3,600,000. 200 HOMES, "Farrington Lake Manor" adjoining Farrington Lake, EAST BRUNSWICK, N. J. Jack J. Hadshuh, Forest Hills Rd., West Orange, N. J. Percy S. Simon, 362 Cedar Lane Teaneck, N. J., archt.

▲ **Stern & Levang**, South River, N. J., CA, $1,800,000. 87 HOMES, Route 18 on Rues Lane, "Sterling Gardens", EAST BRUNSWICK, N. J. Richard O. Levang, 60 Elizabeth Ave., Teaneck, N. J. Harson & Johns, Railroad and Summit Aves., Tenafly, N. J., archts.

▲ **N. M. Palermo, Inc.**, 70 Wood Ave. No., Linden, N. J., CA, $2,500,000. Clark-Raritan SHOPPING CENTER, Raritan Rd., Clark Twp., ISLEIN, N. J. Clark-Raritan Shopping Center, Inc., c/o contractors. Peter M. Grygotis, 306 Alden Rd., Roselle, N. J., archt.

▲ **Lomen Constr. Co. (Sommers Bros.)**, 45 W. 18 St., New York 11, N. Y., CA, $30,000,000. SHOPPING CENTER, incl. 10 buildings, with 1,000,000 sq. ft. space, Route 1, MENLO PARK, N. J. Menlo Shopping Center, c/o contractor. Lathrop, Douglas, 518 Fifth Ave., New York 18, N. Y., archt. CD 4/25, under N. J., Metuchen.

▲ **Tandy & Allen Constr. Co.**, 280 Hackensack Ave., Hackensack, N. J., CA, $5,000,000. 250,000 sq. ft. STORE, 50-acre tract incl. 35 store units, NEW BRUNSWICK, N. J. Tandy & Allen, Inc., 280 Hackensack Ave., Hackensack, N. J. William Neumann, 587 Summit Ave., Jersey City, N. J., archt. CD 7/17/53.

▲ **Oaklyn Constr. Co.**, P.O. Box 205, Woodbridge, N. J. Owner Builds. $3,800,000. 195 HOUSES, Pfeiffer Blvd., Forbesdale Homes, PERTH AMBOY, N. J. Andrew Rasmussen, 217 Smith St., Perth Amboy, N. J., archt.

▲ **The Port of New York Auth.**, 111 Eighth Ave., New York 11, N. Y., rejected bids Apr. 17, BUILDINGS Nos. 178, 179, 180, 181 and 182 and wharf, Contract PN-300-004, PORT NEWARK, N. J. LB $7,393,000. Will re-advertise. CD 4/19, under LB.

▲ **S. & G. Paudia Builders, Inc.**, 181 N. Washington Ave., Bergenfield, N. J., CA, $2,000,000. 80

HOUSES on tract in Tenafly Rd. north of Ivy Lane, TENAFLY, N. J. Walnut Manor Homes, c/o contractor.

▲ **Baton Constr. Corp.**, 1717 Sansom St., Phila., Pa. CA $3,500,000. MANUFACTURING BLDG. addn., SERVICE BLDG., BOILER HOUSE, parking lot, ALLENTOWN, PA. Western Electric Co., 555 Union Blvd., Allentown, Pa. CD 2/28.

▲ **John H. Wickersham**, 145 Locust St., Lancaster, Pa. LB $1,975,000. general constr. 1, 2, 3 story, brick JUNIOR-SENIOR HIGH SCHOOL, site imprvs., utilities, parking lot, MILLERSVILLE, PA. Manor Joint High School Auth., Millersville, Pa. Bids May 15. CD 5/10.

▲ **Walter Kidde Constructors, Inc.**, 140 Cedar St., New York, N. Y. CA $1,500,000. design and construct 1 story, 130,200 sq. ft., brick, concrete, steel MANUFACTURING BLDG., DOVER, DEL. International Latex Corp., Dover, Del.

SOUTH

HEAVY CONSTRUCTION—BA

▲† **Alabama**—BA 6/14—U. S. Eng., 2301 Grant St., Mobile, Ala., constr. rolled-fill earth dam, approx. 770 ft. long, maximum of 70 ft. high across present river channel; concrete gravity gated spillway 424 ft. long and maximum of 79 ft. high, containing 6 tainter gates on present left bank for Warrior Lock and Dam on Warrior River, approx. 6 mi. southeast of Eutaw.

BUILDINGS—BA

▲ **Ala., Birmingham**—RESIDENCE HALL—BA 6/7—Bd. Trustees, Howard College, Lakeshore Dr., Zone 9, brick, stone women's residence hall on new campus at Homewood, $1,000,000; men's residence hall on new campus at Homewood, $1,000,000. Extended date. Plans deposit $25 each. Van Keuren, Davis & Co., 3004 7 Ave. S., archts. CD 4/25.

HEAVY CONSTRUCTION—LB & CA

▲ **English Constr. Co.**, Altavista, Va., CA $1,057,740, Prop. No. 1, Div. No. I; CA $1,067,740, Prop. No. 2, Div. No. II, of sanitary sewerage sys. and sewage treatment plant, LYNCHBURG, VA. Grand total $3,092,740. City, Municipal Bldg., Lynchburg, Va. Bids Apr. 3, CD 4/19, under LB;
F. L. Showalter, Inc., 2900 Fulks St., Lynchburg, Va., CA $967,260, Prop. No. 4, Div. IV, (Lynchburg, Va.).

▲† **U. S. Eng.**, 308 Customhouse, Wilmington, N. C., rejected bids Apr. 17, dredging Wilmington Harbor, CIVENG-31-075-56-26, NORTH CAROLINA. LB $2,232,205. CD 4/23 under LB.

▲ **WEST VIRGINIA**—State Rd. Comn., Charleston, **Nello L. Teer Co.**, Trust Bldg., Durham, N. C., LB $2,308,379; $1,980,889 Alt.; grading, draining 1.904 mi. Patrick St. Bridge-C & O Depot Road, U-317 (3), Charleston, Kanawha Co. Bids May 22. CD 5/7.

▲† **P. Wks. Officer, Dpt. Navy**, Naval Base, Charleston, S. C., rejected bids May 9, offshore platforms at Navy Mine Defense Laboratory, NOy 91132, PANAMA CITY, FLA. LB $3,474,980. CD 518, under LB.

▲ **LOUISIANA**—Mississippi River Bridge Auth, 422 City Hall, New Orleans,
Bethlehem Steel Co., Bethlehem, Pa. LB $8,516,829. superstructures of New Orleans and Algiers approach viaducts for Greater New Orleans Bridge over Mississippi River. Bids May 22. CD 4/30.

BUILDINGS—LB & CA

▲ **Austin Co.**, 16112 Euclid St., Cleveland, O. CA $2,250,000. paper bag mfg. PLANT, NORTH CHARLESTON, S. C. American Sugar Refining Co., foot of Tasker St., Phila., Pa.

▲ **Clutter Constr. Corp.**, 377 Westward Dr., Miami Springs, Fla., LB $2,299,000 Base Bid Norland, Rainbow Park, Tropical, West Palm Springs, Westwood Village, Westwood Lake, Richmond Heights Elementary SCHOOL, MIAMI, FLA. Bd. P. Instruction, School Admin. Bldg., 275 N.W. 2 St., Miami, Fla. Bids May 16. CD 4/27.

▲ **Foster & Creighton Co.**, American Natl. Bank Bldg., Nashville, Tenn., LB $2,137,657, est. $1,500,000-$1,700,000. site work MEN'S DORMITORIES, NASHVILLE, TENN. Vanderbilt University, Nashville, Tenn. CD 4/19.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

June 6 Michigan June 12 Ohio

STREETS AND ROADS

June 12 Ohio

BUILDINGS—BA

▲ **Ill., Arlington Heights**—HIGH SCHOOL—BA 6/6—Arlington Twp. High School, 502 W. Euclid St., Prospect High School and gymnasium. $3,500,000. Nicol & Nicol, 23 E. Jackson Blvd., Chicago, archts. CD 1/4.

Ind., Lebanon—SCHOOL—BA 6/7—Lebanon School Bldg. Corp., Lebanon, high school. $1,250,000. McGuire & Shook, 1400 Fletcher Trust Bldg., Indianapolis, archts. J. M. Rotz Eng. Co., Merchant Bank Bldg., Indianapolis, Ind., consult. engrs. Bids May 3 rejected. CD 4/26.

▲ **Wis., Milwaukee**—HOSPITAL—BA 6/26—St. Lukes Hospital Assn., 2900 W. Oklahoma Ave., 7 story, ground floor hospital addn. $1,700,000. Grassold-Johnson & Assocs., 734 N. Jefferson St. Zone 2, archts. CD 11/24/53.

▲ **Wis., Green Bay**—SCHOOL—BA 6/28—Bd. Educ., 523 Howe St., West Junior High School, $2,575,000. Plans deposit $50. Foeller, Schober & Berners, Safford & Jahn, 310 Pine St., archts. CD 11/2.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,
O.—**The Clinton Asphalt Paving Co.**, 805 E. Columbus St., Wilmington, O. LB $91,797, est. $89,100. (2 bidders) Type T-35 on B-119, 0.551 mi. SR 134-1.93, S-77 (3), Clinton Co.;
O.—**Lombardo Bros. Constr. Co.**, 3600 Ridge Rd., Cleveland, O. LB $379,403, est. $406,600 (3 bidders) Type T-35, 3.026 mi. Villages of Bedford Heights, North Randall and Warrensville Heights; Cities of Maple Heights and Shaker Heights, S. R. 8-(5.09-7.97), F-623 (7), Cuyahoga Co.;
O.—**The Baker & Hickey Co.**, P.O. Box 5008, Tri-Village Station, Columbus, O. LB $1,675,243, est. $1,803,300. (3 bidders) Type T-35 on B-70 and structures 1.851 mi. City of Columbus, USR 40R-12.30, U-1085 (1) Franklin Co.;
O.—**Menuez & Skemp**, Millersburg, O. LB $150,102, est. $176,000. (8 bidders) Type T-35 and structure 0.617 mi. USR 36-(26.04-26.10) F-637 (3), Knox Co.;
O.—**Claude A. Janes, Inc.**, 413 Peoples Bank Bldg., Marietta, O. LB $131,996, est. $152,800. (6 bidders) Type T-32 on B-119 and structures 0.781 mi. SR 26, 0.00, (18.37) (19.13) (20.61) (28.31) (30.03), S-1107 (4) Monroe and Washington Counties;
O.—**The Murray Constr. Co.**, 316 W. Emmitt Ave., Waverly, O. LB $152,806, est. $168,000. (4 bidders) Type T-35 on B-119 and structure 0.937 mi. S. R. 28, (5.21) (7.85), FJ-1079 (1), Ross Co.;
O.—**Kane, O'Hara & Haenny, Inc.**, 65 W. Indianola Ave., Youngstown, O. LB $377,062, est. $406,100 (2 bidders) Type T-35, 2.162 mi. SR 7, USR 224-(5.21) (6.96-7.07) Mahoning Co.;
O.—**Mansfield Asphalt Paving Co.**, Rear 153 Orange St., Mansfield, O. LB $73,263, est. $73,600. (2 bidders) Type T-35 1.65 mi. USR 42-10.98, Morrow Co.;
O.—**The W. P. McCarren Co.**, Walhonding, O. LB $79,875, est. $88,283. (2 bidders) Type T-35 15.27 mi. Coshocton and Knox Counties;
O.—**Geo. W. Van Camp**, 112¼ S. Court St., Circleville, O. LB $74,852, est. $74,853. (1 bidder) Type T-35, T-30. 14.59 mi. Pickaway Co. Bids May 15. CD 4/23.

▲ **H. C. Price Co.**, Bartlesville, Okla., CA Est. $7,500,000. 83 mi. 26 in. gas line across southeastern Ohio, from Malta on Muskingum River to Scioto Furnace, northeast of Portsmouth, OHIO. Tennessee Gas Transmission Co., Commerce Bldg., Houston, Tex. CD 9/29, under Kentucky, Ohio, Louisiana.

▲ **ILLINOIS**—State Div. Hys., Springfield,
M. Hoeffken & Hoeffken Brothers, 222 W. B. St., Belleville, Ill., CA $1,580,340, wid'n. 4.49 mi. conc. base course 6.9 mi. c. conc. paving 1.53 mi. S. W. of Fairfield, Wayne Co. Bids Apr. 24. CD 4/27, under LB.

▲ **Mt. Vernon Bridge Co.**, Sugar and Adams Sts., Mount Vernon, O., CA $1,926,760. furnishing, fabricating, erecting 3,775 tons steel on Calumet Skyway Toll Bridge Proj., CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Apr. 6. CD 4/23, under LB.

▲ **MICHIGAN**—Mackinac Bridge Auth., 608 Prudden Bldg., Lansing,
Bates & Rogers Constr. Corp., 600 W. Jackson St., Chicago, Ill. LB $2,039,309 (5 bidders) paving 17,918 ft. Mackinac Bridge deck, Contr. No. 3. Bids May 15. CD 4/23.

BUILDINGS—LB & CA

▲ **Scholz Homes, Inc.**, 2001 N. Westwood St., Toledo, O. Owner Builds. $3,500,000, 118 HOMES, 74-acre site, Dover Bay Country Club, BAY VILLAGE, O. CD 9/14.

▲ **Manor Development Co.**, 4410 286th St., Toledo, O. Owner Builds. $3,000,000. 180 HOMES to be known as Grosse Pointe Manor in Point Place on Ottawa River, TOLEDO, O.

▲ **Knowlton Constr. Co.**, 1133 W. Columbus St., Bellefontaine, O., CA $1,727,000. Troy HIGH SCHOOL, TROY, O. Bd. Educ., 530 E. Main St., Troy, O. Bids May 8. CD 5/15, under LB.

▲ **Columbia City Joint High School Bldg. Corp.**, Columbia City, Ind., rejected bids May 7, HIGH SCHOOL, COLUMBIA CITY, IND. LB $2,090,000. Will re-advertise. CD 5/16, under LB.

▲ **American Construction Corp.**, 1120 Carroll St., East Chicago, Ind., Own Forces, $3,500,000. 350 HOMES, EAST CHICAGO, IND. L. Harry Warriner, 527 Broadway, Gary, Ind., archt. CD 4/4.

▲ **Villa Shores Realty Corp.**, 34 Beverly Blvd., Hobart, Ind., Own Forces, $1,500,000. 90 HOMES, HOBART, IND.

▲ **Turner Constr. Co.**, 420 Lexington Ave., New York, N. Y. and **John W. Galbreath & Co.**, 42 E. Gay St., Columbus, O., CA, $10,126,500 Base Bid, APARTMENT COURTS for 900 married students, LAFAYETTE, IND. Bd. Trustees, Purdue University, West Lafayette, Ind. Bids Apr. 18, awarded May 27. CD 4/4.

▲ **Black & Anderson**, 428 N. Michigan Ave., Chicago, Ill., LB $2,923,268, HOSPITAL addn., SOUTH BEND, IND. St. Joseph Hospital, 401 N. Notre Dame Ave., South Bend, Ind. Schmidt, Garden & Erikson, 104 S. Michigan Ave., Chicago, Ill., archts.

▲ **Bee Cee Builders**, Army Trail Rd., Addison, Ill. Own Forces. $8,200,000. 580 HOMES, sewage, water facilities, paving, ADDISON, ILL. Gustav Brown, 3818 Greenleaf St., Lincolnwood, Ill., archt.

▲ **Thomas Catino & Son**, 4216 N. Central Ave., Chicago, Ill. Own Forces. $4,000,000. 136 HOMES, ARLINGTON HEIGHTS, ILL. Otto Monberg, 3306 N. Newland Ave., Chicago, Ill., archt.

▲ **Contractors & Builders, Inc.**, 228 N. La Salle St., Chicago, Ill. Own Forces. $1,700,000. 38 group HOUSES, incl. 190 units, CHICAGO, ILL. A. J. Del Bianco, 5501 W. Irving Park, Chicago, Ill., archt.

▲ **S. N. Nielsen**, 3059 W. Augusta Blvd., Chicago, Ill., LB $2,399,140. HIGH SCHOOL addn. and GYMNASIUM, DOWNERS GROVE, ILL. School Dist. 99, 936 Warren St., Downers Grove, Ill. Bids Apr. 12. CD 3/27.

▲ **L & H Builders**, 719 S. Lake St., Mundelein, Ill. Own Forces. $5,640,000. 470 HOMES, MUNDELEIN, ILL.

▲ **Panozzo Constr. Co.**, 11912 S. Union Ave., Chicago, Ill., Own Forces. $7,500,000. 500 HOMES, RIVERDALE, ILL.

▲ **Northlake Cement Co.**, 15 S. Wolf Rd., Northlake, Ill., CA $1,500,000. 100 HOMES, NORTHLAKE, ILL. Midland Developers, 2459 W. Peterson Ave., Chicago, Ill. A. J. DelBianco, 5501 W. Irving Park, Chicago, Ill., archt.

▲ **Kroening Eng. Corp.**, 4500 W. Mitchell St., Milwaukee, Wis., CA $2,277,452. general constr. SENIOR HIGH SCHOOL, WAUKESHA, WIS. Bd. Educ., Waukesha, Wis. Bids Apr. 26. CD 5/2, under LB.

▲ **Darin & Armstrong, Inc.**, 2041 Fenkell St., Detroit, Mich. CA $1,975,997. general constr. Pontiac General HOSPITAL, PONTIAC, MICH. City, Ada R. Evans, city clk., Pontiac, Mich., Grand total $3,390,079; **Broedell Plumbing & Heating, Inc.**, 202229 Mack St. Grosse Pointe, Me. CA $956,283. plumbing, heating, ventilating and air-conditioning work. (Pontiac, Mich.); **Sarin Electric**, 10431 W. Chicago St., Detroit, Mich. CA $457,799. electrical work (Pontiac, Mich.).

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

June 7 Kansas June 8 Minnesota
June 12, 13 Texas

STREETS AND ROADS

June 7 Kansas June 8 Minnesota
June 12, 13 Texas

BUILDINGS—BA

▲ **Tex., Victoria**—HIGH SCHOOL—BA 6/12—Victoria Independent School Dist., Victoria, Senior High School. $2,250,000. Paul G. Silber & Co., 1919½ Cincinnati Ave., San Antonio, archts. F. A. Covington, 1406 W. Elsmere St., and R. Marvin Shipman, 146 Olmos Dr. West, San Antonio, engrs. CD 10/21.

▲ **Wyo., Casper**—BANK—BA 6/20—Casper National Bank, 2nd and Center Sts., 8 story, 140x143 ft. bank bldg.; 2 bsmnt. parking levels; 138,000 sq. ft. area, $2,000,000. Plans deposit $50. Robert Wehrli, 829 CY Ave., archt. CD 4/30.

BUILDINGS—SLC

▲ **Tex., Houston**—OFFICE, GARAGE—Melvin A. Silverman & Bennett Rose, 2923 Shenandoah St., soon lets contract 10 story office, $2,500,000; 5 story, bsmnt., parking garage, $500,000. Lloyd & Morgan, 4605 Montrose Blvd., archts. Walter P. Moore, 2 Pinedale St., engr. CD 5/2.

HEAVY CONSTRUCTION—LB & CA

▲ **Long Lines Div., American Telephone & Telegraph Co.**, 32 Avenue of America, New York, N. Y. CA Est. $2,760,000, constr. radio relay systems from North Bend, Neb. to Red Oak, Iowa, NEBRASKA-IOWA. Northwestern Bell Telephone Co., 19 and Webster Sts., Omaha, Neb.

BUILDINGS—LB & CA

▲ **White, Green & Addison Associates, Inc.**, Boston Bldg., Denver, Colo. Owner Builds. $2,000,000. University of Colorado EXTENSION CENTER, DENVER, COLO. Colorado University, lessee. Paul Rush, c/o owner, engr.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

June 19 Washington June 20 California

STREETS AND ROADS

June 20, 21 California

BUILDINGS—BA

▲ **Wash., Seattle**—DORMITORY—BA 6/14—University of Washington, Seattle, Zone 4, 8 story men's dormitory addn. $2,800,000. Young, Richardson, Carleton & Detlie, Central Bldg., archts. CD 9/22.

HEAVY CONSTRUCTION—LB & CA

▲ **Merritt-Chapman & Scott Corp.**, 260 Madison Ave., New York, N. Y., CA, $91,878,625, rein.-con. earth-

fill dam about 8,412 ft. long across Columbia River at Priest Rapids near Richland to develop 79 ft., head and 600,000 kw. WASHINGTON. Grant County Public Utility Dist., Ephrata, Wash. Bids May 12, awarded May 16. CD 3/14, under LB.

▲† **S. Morgan Smith Co.**, 500 Lincoln St., York, Pa., CA $4,258,430. three 143,000 h.p. hydraulic turbines, Ice Harbor Dam, Pasco, Walla Walla Co., Inv. 56-50, WASHINGTON. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Apr. 12. CD 4/16, under LB.

▲† **Peter Kewit Sons' Co.**, 345 Kieways Ave., Arcadia, Calif., CA $1,995,056. channel imprvs., California Arcadia Wash., Lima St. Branch, channel debris basin, Sierra Madre-Arcadia District, CIVENG-04-353-56-48, CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Apr. 26. CD 4/30, under LB.

▲ **Arundel Corp.**, 1755 N. Sierra Bonita, Los Angeles, **L. E. Dixon Co.**, 409 S. California St., San Gabriel and **Kemper Constr. Co.**, 3701 Overland St., Los Angeles, Calif., CA, $6,196,691, est. $6,678,709, Unit I, North Central Outfall Sewer, Sections B through G, LOS ANGELES, CALIF. City, City Hall, Los Angeles, Calif. Bids Apr. 25, awarded May 18. CD 4/30, under LB.

▲† **B. O. Larson**, 1340 "E" St., San Diego 2, Calif., CA, $1,970,000. enlisted men's barracks second increment), Naval Air Station NOy 90857, Spec. 49534, MIRAMAR, CALIF. Eleventh Naval Dist., 1220 Pacific Hy., San Diego, Calif. Bids May 28, awarded Apr. 4. CD 4/2, under LB.

BUILDINGS—LB & CA

▲ **General Petroleum Corp. (subsidiary) Socony-Vacuum Co., Inc.**, 612 S. Flower St., Los Angeles, Calif. Day Labor. $3,600,000. addnl. PLATFORMER and related work at oil refinery, FERNDALE, WASH. CD 2/23.

▲ **Sound Constr. & Eng. Co.**, 1300 Alhoa St., Seattle, Wash., CA, $5,033,990, general contract, TEACHING HOSPITAL, SEATTLE, WASH. University of Washington, Seattle 5, Wash. Bids May 15. CD 5/18, under LB;
W. A. Botting, Inc., 5625 University Way, Seattle and **Navarre Plumbing & Heating Co.**, 3839 Stone Way, Seattle, Wash. CA, $2,618,288, mechanical work (Seattle, Wash.).

▲ **Kaiser Engineers**, 1924 Broadway, Oakland, Calif., CA, $113,000,000. Design and construct, steel PLANT addn., incl. oxygen steel making process plant, slabbing mill, altering hot strip, plate and tin mills, FONTANA, CALIF. Kaiser Steel Corp., 1924 Broadway, Oakand, Calif. CD 8/13/53.

▲ **Swinerton & Walberg**, 200 Bush St., San Francisco, Calif., CA $6,300,000. new box board MILL, SANTA CLARA, CALIF. California Container Corp., 2500 De La Cruz Blvd., Santa Cruz, Calif. Bids Apr. 30. CD 1/4.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
June 6 Nova Scotia

▲ **Ontario**—BA 6/12—St. Lawrence Seaway Auth., No. 2 Temporary Bldg., Ottawa, Ont., two locks between Lake St. Louis and Beauharnois Power Canal and supplying, erecting two rolling lift type bridges at Cote Ste. Catherine near Lachine Rapids and at Iroquois Lock near Iroquois for St. Lawrence Seaway Auth. CD 9/9/54.

HEAVY CONSTRUCTION—LB & CA

▲ **Welland Tubes, Ltd.**, Welland, Ont. and **Steel Co. of Canada**, Wilcox St., Hamilton, Ont., CA Est. $8,000,000. Total est. $10,000,000-$13,500,000, 150 mi. 20 in. steel pipe for crude oil pipe line from Sarnia to Port Credit, ONTARIO. Interprovincial Pipe Line Co., 50 King St. W., Toronto, Ont. Awarded May 17. CD 1/23.

BUILDINGS—LB & CA

▲ **Shawinigan Engineering Co.**, Foundry Rd., Shawinigan Falls, Que., CA $3,000,000 design and construct POWER PLANT to house two 6,000 hy. turbines, CORNERBROOK, NEWFOUNDLAND. Bowster's Newfoundland Pulp & Paper Mills Ltd., Corner Brook, Newfoundland. Awarded May 9. CD 10/19/51.

▲ **Universal Oil Products Co.**, Des Plaines, Ill., CA, Total est. $3,000,000 design and construct Udex EXTRACTION PLANT and PLATFORMING UNIT, SARNIA, ONT. Canadian Oil Companies Ltd., 204 Richmond St. W., Toronto, Ont. Awarded May 9.

▲ **Derby Development Corp. & J. H. Smith Constr. Co. Ltd.**, 6268 Cote des Nieges Rd., Montreal, Que., Owner Builds, $2 000,000. HOUSING, incl. 239 houses on farm, BAIE D'URFE, QUE.

ALASKA

HEAVY CONSTRUCTION—BA

▲† **Alaska** — WHITE ALICE FACILITIES — BA 6/8 — U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash., constr. White Alice facilities at Bethel, Kodiak, Middleton Island, Sitkinak, Unalakleet, Sparrevohn and Indian Mountain, Inv. 56-53. $5,000,000.

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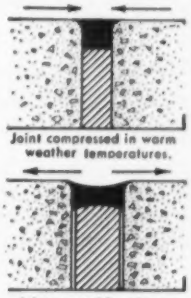

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BUILDINGS—LB & CA

▲† **Denali-McCray,** Anchorage, Alaska, CA **$1,751,493.** 60,000 sq. ft. 1 and 2 story, rein.-con. HIGH SCHOOL, Proj. 50-A-176, Unit 2, JUNEAU, ALASKA. Alaska P. Wks., Dpt. Interior, Juneau, Alaska. Bids Apr. 25. CD 4/30, under LB.

LATIN AMERICA

HEAVY CONSTRUCTION—BA

▲ **Venezuela, Puerto Cabello**—BA 6/30—Ministerio de Obras Publicas, Edificio La Previsora, Caracas, D. F., dredging at drydock and shipyard. $3,000,000. CD 5/8.

FOREIGN

HEAVY CONSTRUCTION—LB & CA

▲ **Dorman Long,** London, England, CA **$1,788,892,** constr. highway bridge over Euphrates River at Nasiriya, IRAQ. The Development Bd. and Ministry of Development, Baghdad, Iraq. Bids Apr. 17. CD 1/10.

PROPOSED PROJECTS

WATER SUPPLY

▲ **O., Zanesville**—City, voted bonds May 8, WW imprvs. **$2,930,000.** CD 5/19/52.

▲ **Tex, Austin**—City, City Hall, voted bonds, May 12, WW. **$4,000,000.** CD 5/2.

▲ **Tex., San Antonio**—City Water Bd., 106 W. Market St., bond election June 12, 144 mi. water mains, $10,957,000; Olmos Basin Water Pumping Plant, $2,449,000; Canyon Dam Reservoir, $1,500,000; modernizing artesia water pumping station, $788,800; new water pumping station at 34 St., $782,200; modernizing 4 water pressure regulating tanks, $197,000; Pressure Water Regulating Tank No. 2, $175,000; Pressure Regulating Water Tank No. 1, $150,000; rehabilitation of small water pumping station, $169,000; modernizing Mission Pumping Station, $686,500; modernizing Old Market St. Pumping Station, $500,000; misc. imprvs. and extens. to water sys. $2,530,500. Bond election date extended. CD 3/22.

SEWERS, WASTE DISPOSAL

▲ **Calif., San Jose**—City, City Hall, voted bonds sewerage imprvs., 3 sanitary trunk sewers and storm sewers, $1,500,000. CD 3/12, under Streets and Roads.

▲ **Colo., Englewood**—City, City Hall, storm sewerage sys. $3,000,000. Ripple & Howe, 833 23 St., Denver, consult. engrs.

▲ **Mo., St. Louis County**—Metropolitan St. Louis Sewer Dist., William Q. Kehr, exec. dir., 506 Olive St., St. Louis, Zone 1, constr. about 10 mi. trunk sewers in Gravois Creek watershed to serve about 23 square mi. territory in southern St. Louis County, incl. parts of Kirkwood, Webster, Groves, all of Crestwood and Oakland and large unincorporated residential sections of county. $2,700,000-$3,000,000. Sverdrup & Parcel, Inc., 917 Olive St., St. Louis, Zone 1, consult. engr. CD 3/6.

▲ **N. Y., Lancaster**—Town, sanitary sewerage sys., $1,900,000.

▲ **O., Zanesville**—City, voted bonds May 8, sewage treatment plant, **$4,900,000.** CD 11/14.

▲ **Tex., Austin**—City, voted bonds May 12, sanitary sewers, $4,750,000; storm sewers, $1,500,000. CD 5/2.

▲ **Ont., Kitchener**—City, City Hall, main sewage plant extension. $1,800,000, new pumping station, force main and relief sewer, $350,400. Proctor, Redfern & Laughlin, 11 Jordan St., Toronto, consult. engrs. CD 9/21.

BRIDGES

▲ **Pa., Pittsburgh**—Bd. Comrs. Allegheny Co., County Office, concrete, steel, 62 Street Bridge and concrete approaches, **$8,000,000.** CD 10/22/47.

STREETS AND ROADS

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15, **Lucas Co.**—re-routing US 23 and 223; 0.8 mi. from Michigan Line to Monroe St. Interchange; 2.8 mi. sect. from Monroe to W. Central Ave.; 6 mi. sect. from W. Central to Heather Downs and Reynolds, Toledo. $10,590,000-$11,495,000. Howard, Needles, Tammen & Bergendoff, 55 Liberty St., New York, N. Y., consult. engrs. CD 8/18/53.

▲ **O., Toledo**—City, City Hall, defeated 2-mill 20-year real estate tax levy May 8, highway imprvs. **$21,940,000.** CD 3/12.

▲† **VIRGINIA and NORTH CAROLINA**—National Park Service, Dpt. Interior, Interior Bldg., 19 and C Sts. N. W., Wash. 25, D. C. completion of Blue Ridge Parkway, all but 25 mi. under long range "Mission 66" program. **$27,885,000.** No appropriation. CD 3/7.

AIRPORTS

▲ **Conn., Windsor Locks**—AIRPORT—Connecticut Aeronautics Comm., Hartford, additions, incl. Air Force Reserve installation, Bradley Field, **$4,000,000.**

▲† **Conn., Windsor Locks**—ADMINISTRATION BLDG., etc.—U. S. Eng., 150 Causeway St., Boston, Mass., administration bldg., Bradley Field, **$912,000,** CD 11/15/54; reserve installation at Bradley Field, incl. 35,000 sq. ft. hangar, fuel storage, parking areas and taxiways, **$2,500,000.**

▲ **Tex., Austin**—AIRPORT—City, W. T. Williams, Jr. city mgr., City Hall, voted bonds May 12, airport, **$2,000,000.** CD 5/2.

▲ **Wash., Moses Lake**—HANGAR—Boeing Airplane Co., 7755 E. Marginal Way, Seattle, Zone 4, 2 place B-52 plant and finish hangar, **$3,000,000.** Wilson & Co., Salina, Kan., consult. engrs.-archts.

LATIN AMERICA

▲ **Haiti-Public Wks. Dpt.,** Port-au-Prince, plans repairing 725 mi. roads, **$3,980,000.** World Bank granted $2,600,000 loan.

▲ **N.W.I., Aruba**—HOTEL CASINO—Govt. of N.W.I. Aruba and Venaruba C.A., Apartado 3249 Caracas D.F., Venezuela, plans by Lapidus & Kronbiath, 528 Lincoln Rd., Miami Beach, Fla., U.S.A., hotel and casino. $3,600,000.

▲ **Venezuela, Tucupita**—PAPER PLANT—Productora de Pulpa y Papel, Caracas, plans paper plant. **$8,000,000.**

▲ **Venezuela, Valencia**—PLANT—General Motors Interamericana Corp., Antimano, D. F., plans assembly plant, near here. Construction to start soon.

PUBLIC BUILDINGS

▲ **Calif., Long Beach**—COMMUNITY HOSPITAL, etc.—City, City Hall, plans by Hugh R. Davies, Powell & Daniel, Montierth & Strickland, Security First Natl. Bank Bldg., community hospital, $3,513,000; osteopathic hospital, **$2,080,000.** CD 2/15.

▲ **Calif., Los Angeles**—STATE OFFICE—State Div. Architecture, P. Wks. Bldg., Sacramento, plans by J. E. Stanton, 627 S. Carondelet St., state office bldg. $8,000,000-$9,000,000. CD 3/18/43.

▲ **Calif., Ventura**—JUNIOR HIGH SCHOOL—Ventura Unified High School Dist., 295 Arcade Dr., plans by Kenneth Hess, 620 E. Main St., 97,800 sq. ft. Junior High School, **$2,500,000.** CD 4/16.

▲ **Conn., New Haven**—SCHOOL—Town Bd. Educ., City Hall, plans by Schilling & Boldbecker, 18 Trumbull St. New Haven, East High School, Mitchell Dr. $2,500,000. CD 3/9.

▲ **Fla., Miami Beach**—EXHIBITION HALL—City, City Hall, voted $3,500,000 bonds, exhibition hall. CD 4/27.

▲† **Md., Rockville**—HOSPITAL—Veterans Admin., Munitions Bldg., Wash. 25, D. C., 500-bed veterans hospital. Site being condemned, **$10,000,000.** (No appropriation). To go ahead in 1958.

▲ **Md., Rockville**—SCHOOL—Montgomery Co. Bd. Educ., plans by Johannes & Murray, 855 Pershing Dr., Silver Spring, Junior High School in north Silver Spring, $2,000,000. CD 2/2/53.

▲ **N. J., Hoboken**—HIGH SCHOOL—City, City Hall, high school. **$3,860,000.**

▲ **N. J., Mahwah**—SCHOOL—Bd. Educ., Malcolm Rd., Mahwah, plans by Warren H. Ashley, 967 Farmington Ave., West Hartford, Conn., Senior High School, $2,500,000. Chas. A. Currier & Assocs., 967 Farmington Ave., West Hartford, Conn., consult. engrs. CD 2/8.

▲ **N. J., North Bergen**—HIGH SCHOOL—Bd. Educ., Twp. of North Bergen, Town Hall, high school. **$2,750,000.**

▲ **N. Y., Buffalo**—SCHOOL—Bd. Supervs. Erie Co., County Hall, plans by Duane Lyman & Assoc., 505 Delaware Ave., school for Erie County Technical Institute. **$6,331,000.** CD 12/15.

▲ **N. Y., West Seneca**—West Seneca Central School Dist., voted **$2,557,000** bonds, Junior High School. Pfohl & Stoll, 187 Niagara St., Buffalo, archts. CD 4/19.

▲ **O., Cincinnati**—HOUSING—Model City Development Co., 924 North Bend Rd., 110 brick, 1 floor and split level, Homes, near Greenhills area. $2,250,000. Bids July.

▲ **O., Hamilton**—SCHOOL—Bd. Educ., Robert Stevenson, pres., 322 Dayton Ave. bond election Nov. 6, school expansion program. **$4,500,000.** CD 11/13/51.

▲ **O., Toledo**—MUNICIPAL—City, City Hall, defeated 2-mill, 20-year real estate tax levy May 8, municipal bldg. **$2,060,000.** CD 3/12.

▲† **Okla., Muskogee**—PLANT—Dpt. Navy, 18th St. and Constitution Ave. N.W., Wash. 25, D. C., chemical base high energy fuel plant. **$35,000,000.**

▲ **S. D., Sioux Falls**—AUDITORIUM, etc.—City, $2,500,000 bond election June 12, auditorium, arena.

▲ **Tex., Austin**—POWER PLANT—City, City Hall, voted bonds, May 12, electric power plant unit, **$5,000,000.** CD 5/2.

▲ **Tex., Austin**—STATE HEALTH OFFICE—State Dpt. Health, c/o Dr. Henry A. Holle, state comr. Health, 410 E. 5 St., plans by Page, Southerland & Page, 602 West Ave. and Whit Phillips, 2502 Elise St., 4 story, bsmnt., 68x190 ft. rein.-con. administration bldg.; 3 story, bsmnt., 67x190 ft. rein.-con. laboratory; 1 story, 161x194 ft. rein.-con. vital statistics bldg. $3,750,000. Wilson & Cottingham, Brown Bldg. and Blum & Guerrero, 1111 Neches St., consult.-engrs. CD 9/20.

▲ **Wash., Kennewick**—SCHOOL—School District 17, plans by J. S. Villesvik, Liberty Bldg., Yakima, Junior High School. **$1,600,000.** CD 2/8.

▲ **Wis., Plymouth**—INDUSTRIAL SCHOOL—State Dpt. P. Welfare, Madison, plans by Roger C. Kirchhoff, state archt., Industrial School for Boys. **$6,000,000.**

COMMERCIAL BUILDINGS

▲ **Ill., Chicago**—APARTMENTS—Owner, c/o Pace Associates, archts., 53 W. Jackson Blvd., Chicago, two 22 story 400-unit apartment bldgs. Lake Shore Dr. and Addison St. **$9,000,000.**

▲ **Ind., Indianapolis**—SHOPPING CENTER—Frank and George Bixler, 40000 S. East St., Zone 27, plans by C. Wilbur Foster & Assoc., 4741 E. Washington St., shopping center, incl. new streets, sewers, etc. **$2,000,000.**

▲ **Ind., Indianapolis**—SHOPPING CENTER—Speedway Enterprises, Inc., c/o Paul V. Matkin & Assocs., consult. engrs.-archts., 5878 Ralston Dr., constr. Speedway Shopping Center, W. 16 St. **$3,500,000.** Bids in August.

▲ **Mo., Towson**—HOTEL, etc.—Greater Towson Development Corp., c/o Bruce S. Campbell, Campbell Bldg., Towson, Zone 4, hotel (Knott Hotel Corp.), 2 office bldgs., 200 garden apartment units, swimming pool, parking area, **$10,000,000.**

▲ **Mass., Ayer**—HOUSING—U. S. Eng., 150 Causeway St., Boston, plans by M. A. Dyer Co., 27 School St., Boston, construct and finance, Sect. 2, brick veneer housing 450 units, Fort Devens, **$2,500,000.**

▲ **Minn., Duluth**—HOUSING—Purch. & Contg. Office, Duluth Air Force Base, plans by A. R. Melander, 603 Alworth Bldg., Duluth, construct and finance housing 240 units, Duluth Air Force Base, **$3,000,000.**

▲ **Mo., Kansas City**—HOTEL—Kansas City Hotels Co., c/o Hilton Hotels, 720 S. Michigan Ave., Chicago, Ill., plans by Wm. Beckett, 9026 Melrose St., Los Angeles, Calif., 14 story Hilton-Kansas City Hotel, Baltimore, Wyandotte, 13 and 44 Sts. $18,000,000.

▲ **Mo., St. Louis**—LIBRARY—Washington University, Ethan A. H. Shepley, chancellor, Lindell and Skinker Blvds., Zone 5, plans by Murphy & Mackey, 4746 McPherson Ave., Zone 8, John Olin Library, incl. ground floor, two upper floors and two floors below ground. $3,500,000. CD 3/1/55.

▲ **N. Y., New York**—HOUSING—Empire City Savings Bank, 2 Park Ave., Zone 16, Empire City Housing, 18 story, 180 units on blockfront on west side of Manhattan Ave. from 1221 to 123 Sts. **$2,000,000.**

▲ **N. Y., New York**—OFFICE—475 Fourth Ave. Corp., 545 Madison Ave., Zone 22, plans by Richard Roth, 575 Madison Ave., Zone 22, office, 471-77 Fourth Ave. $3,000,000.

▲ **N. Y., New York**—OFFICE—Syndicate, c/o Charles F. Noyes Co., 42 Broadway, Zone 4, 30 story office with 1,000,000 sq. ft. space to replace present Produce Exchange Bldg. on Broadway, between Beaver and Stone Sts., incl. garage, **$25,000,000.** CD 1/31/51.

▲ **N. Y., New York**—OFFICE—Uris Bros., 575 Madison Ave., Zone 22, plans by Emery Roth & Sons, 575 Madison Ave., Zone 22, 34 story office, 740-754 Third Ave. between 46 and 47 Sts. **$10,000,000.** CD 10/17.

▲ **O., Cleveland**—MOTEL—Bliss Realty, Inc., 808 Union Commerce Bldg., Zone 14, plans by Garfield, Harris, Robinson & Schafer, 1740 E. 12 St., Zone 14, 5 story motel, Euclid Ave., E. 18 St. and Prospect Ave. **$5,000,000.** Work expected to start in October.

▲ **O., Parma**—STORE—May Co., Euclid Ave. at Ontario St., Cleveland, Zone 14, 3 story, 250,000 sq. ft. branch department store in Parmatown Shopping Center at Ridge and Ridgewood Dr. **$7,000,000.**

▲ **O., Rocky River**—MOTEL, etc.—Edison Constr. Co., c/o Louis Skolnik, Perry-Payne Bldg., Cleveland, Zone 14, plans by Louis Skolnik, Perry-Payne Bldg., Cleveland, Zone 14, 2 story brick, concrete 54-68 unit motel, 10-store shopping center, restaurant and coffee shop. **$2,000,000.**

▲ **Tex., Bellaire**—SHOPPING CENTER—Richmond Development Co., c/o Rowland Trowbridge, Bellaire, plans by Lucian T. Hood, 1612 Bissonnet St., Houston, shopping center, **$2,500,000.**

▲ **Wis., Appleton**—SCHOOL—Appleton Central Catholic High School, Inc., 213 E. Wisconsin Ave., plans by M. Lee Allen & Assocs. & Caudill-Rowland & Scott, Zuelke Bldg., Appleton, high school. **$2,000,000.**

▲ **Ont., Toronto**—OFFICE—Swiss Syndicate, c/o Chartered Trust Ltd., 33 King St. W., plans by L. Forster, 77 York St., 12 story on frontage 107x218 ft., 2 bsmnts., garages, rein.-con. air-conditioned office bldg. **$8,000,000.** Wallace, Carruthers & Assocs. Ltd., 92 Yorkville St., consult. engrs. Bids in July. CD 4/12.

▲ **Que., Montreal**—HOSPITAL EXPANSION, etc.—Queen Elizabeth Hospital, 2100 Marlowe Ave., plans by Ross, Patterson, Townsend & Fish, 4115 Sherbrooke St. W., and Sydney & C. S. Comber, 4493 Sherbrooke St. W., hospital expansion and new nurses' residence, **$4,250,000.** CD 7/3/51.

▲ **Que., Nicolet**—CATHEDRAL, etc.—Corp. Roman Catholic Episcopate of Nicolet, Nicolet, plans by Davis Deskaies, Signay St., replacing cathedral and bishopric. **$2,500,000.** CD 5/2.

INDUSTRIAL BUILDINGS

▲ **Calif., Sunnyvale**—ASSEMBLY PLANT—General Motors Co., Gen. Mtrs. Bldg., Detroit, Mich., plans by John S. Bolles, 918 Harrison St., San Francisco, assembly plant for General Motors Autos. **$30,000,000.** Bids to be asked in few months.

▲ **Mass., East Boston**—DAIRY PLANT—Whiting Milk Co., 40 Cambridge St., Charlestown, convert 3 unit former Maverick Mills into modern dairy plant, $3,000,000. Linenthal & Becker, 16 Lincoln St., Boston, consult. engrs.

▲ **Mich., Livonia**—FOOD DISTRIBUTION CENTER—Kroger Co., 1240 State St., Cincinnati, O., 1 story, 550,000 sq. ft., steel, masonry food distribution center, **$5,500,000**, Hixson Tarter & Assoc., Victory Parkway, Cincinnati, O., consult. engrs. Bids about September. CD 5/15.

▲ **N. J., Delair**—PARTS DEPOT—Ford Motor Co., 3000 Scheafer St., Dearborn, Mich., 1 story, 380,000 sq. ft., structural steel, brick 480x760 ft., parts depot 38-acres near here. **$7,500,000.**

▲ **N. Y., Cheektowaga**—WAREHOUSE—Loblaw, Inc., 678 Bailey Ave., Buffalo, 500,000 sq. ft. warehouse, Genesee St. **$4,000,000.**

▲ **O., Ashtabula**—TURBO-GENERATOR—Cleveland Electric Illuminating Co., Public Square, Cleveland, install 250,000 kw turbo-generator at east end of present plant; boiler house will rise 15 stories high and have 400 ft. stack, 117 acre site. **$37,000,000.** C. A. Dauber, c/o owner, engr.

▲ **O., Mingo Junction**—PLANT—Vanadium Corp. of America, 420 Lexington Ave., New York, N. Y., plant—Ferro-alloys plant, 300-acre site west of here. **$7,000,000.** Construction to being July 1.

▲ **O., Richmond Heights**—ADMINISTRATION, etc.—General Electric Co., River Rd., Schenectady, N. Y., plans by Francisco & Jacobus, 511 5th Ave., New York, N. Y. 100,000 sq. ft., brick, concrete administration, research and engineering bldg. for lamp leads and bases dept. **$2,000,000.** CD 1/23.

▲ **Pa., Wampum**—PLANT—Medusa Portland Cement Co., Midland Bldg., Cleveland 15, O., cement plant with productive capacity of 2,500,000 bbls. annually, **$12,000,000,** W. R. Bendy, 6326 Bartmer St., St. Louis, Mo., consult. engr. Constr. within 60 days.

▲ **Tenn., Fulton**—MILL—Pulpwood Development Co., Inc., c/o Lee Winchesttr, Jr. Commerce Title Bldg., Memphis, pulp and paper mill. **$35,000,000.** Not financed.

▲ **Tex., Orange**—PLANT—Firestone Tire & Rubber Co., Orange, 75,000 ton styrene mfg. plant. **$10,000,000.**

▲ **Tex., Port Arthur**—PLANT, etc.—Gulf Oil Corp., Port Arthur, plans by Stone & Pitts, archts.-consult. engrs., 1872 Calder Ave., Beaumont, alkylation Unit 1 expansion, **$1,500,000;** machine shop expansion **$500,000;** 6 new reactors, **$1,000,000;** 3 story 120,000 sq. ft. packaging unit, **$2,000,000;** steel tank farm expansion **$750,000;** boiler shop expansion **$700,000;** sulphur recovery unit, **$1,500,000;** 4 acid sludge decomposing units, **$1,250,000.** CD 5/8.

▲ **N. B., Woodstock**—REFINERY—Statmat Ltd., 620 Cathcart St., Montreal, Que., maganese refinery, **$20,000,000.** Surveyor, Nenninger & Chenevert, 1440 St. Catherine St. W., Montreal, Que., consult. engrs. CD 5/9.

▲ **Que., Chicoutimi**—SMELTER—Eastern Smelting & Refining Co. Ltd., 137 Wellington St. W., Toronto, Ont., smelter at nickel smelter and power development. Total est. **$20,000,000.** Jan H. Reimers, 77 York St., Toronto, Ont. consult. engr. for smelter.

UNCLASSIFIED

▲ **Iowa**—TRANSMISSION LINE—Iowa Power & Light Co., 823 Walnut St., Des Moines, Zone 3, 160,000 volt transmission line from Des Moines to Council Bluffs, **$4,000,000.** CD 2/6/51.

▲ **New Mexico**—STEAM GENERATING UNIT—Plains Electric Generation & Transmission Co-operative, Inc., 915 Copper Ave. N.E., Albuquerque, 16,500 kw steam generating unit and associated facilities, Plains Co. **$3,905,000.** CD 2/13/52.

▲† **North Carolina and Tennessee**—PARK UTILITIES—National Park Service, Dpt. Interior, Interior Bldg., 19 and C Sts., N. W. Wash. 25, D. C., imprvt. and development under long range "Mission 66" Incl. expanded camp grounds, improved and extended water and sewer sys., constr. visitor centers, Great Smoky Mountains. **$10,000,000.** No appropriation. CD 3/5.

▲† **North Carolina**—RECREATIONAL AREA—National Park Service, Dpt. Interior, Interior Bldg., 19 and C Sts. N. W., Wash. 25, D. C., constr. roads, and trails, visitor center and headquarters admin. bldg., new public service bldg. and improved camping facilities, Mission 66 Long Range Program. Cape Hatteras National Seashore Recreational area. **$4,375,000.** No appropriation.

▲ **North Dakota**—RURAL DISTRIBUTION LINES, etc.—Minnkota Power Co-operative, North of Grand Forks, 140 mi. 69 kv rural distr. lines, 30 mi. 115 kv transmission line, sub-station facilities and sys. imprvs., Grand Forks Co. **$2,786,000.** CD 3/27/47.

▲ **O., Toledo**—PARKS, etc.—City, City Hall, defeated 2-mill 20-year real estate tax levy May 8, parks and recreational facilities. **$4,000,000.** CD 3/12.

▲ **Tennessee**—PARK ROADS—National Park Service, Dpt. Interior, Interior Bldg., 19 and C Sts. N. W., Wash. 25, D. C., completion of parkway under long range "Mission 66" program, Foothills Parkway. **$19,375,700.** No appropriation. CD 1/19.

▲ **Washington**—LINE CHANGE, etc.—Great Northern Ry. Co., R. R. Manion, ch. engr., 175 E. 4 St., St. Paul, Minn., 1 mi. line change at Mukilteo, involving new trestle across bay; 1.3 mi. line change at Edmonds and single-tracking present line through Seattle's Ballard district, with flume and catch basin, King and Snohomish Counties. **$2,000,000.** Work to begin next month.

▲ **Alaska, Anchorage**—PORT FACILITIES—City, City Hall, bond election May 29, port facilities. **$8,800,000.** CD 12/1

(Proposal Advertisements see p. 90 to 93)

CEMENT GUN COMPANY RESTORES 15 MILLION GALLON RESERVOIR WITH "GUNITE"

This 15 million gallon reservoir of a large Virginia municipality was made "better than new" with a 2" thick "Gunite" lining placed by a Cement Gun Company crew. The structure had been leaking badly through construction joints and required grouting behind the slopes in order to fill voids formed by the leakage. With reinforcing mesh in place, we applied "GUNITE" to the slopes and out 8 feet on bottom. Results were so pleasing to city officials that we were asked to repair an adjacent 5 million gallon reservoir.

Free Bulletin A3000 illustrates many examples of repair and new construction completed with "GUNITE" by the Cement Gun Company. A request on your letterhead will bring a copy by return mail.

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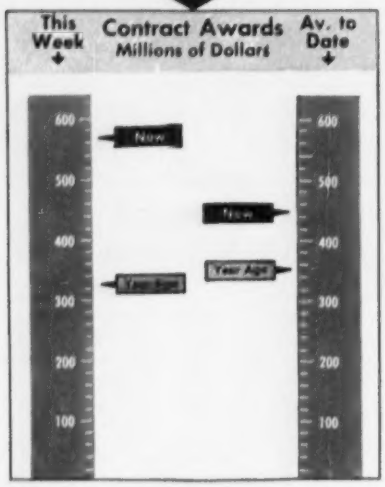
Construction Scoreboard

Activity this Week



AMOUNT OF CONTRACTS LET

By Ownership	This Week	Cum. 22 wks 1956	Chge %
	$ millions		
Federal	$38.6	$771.3	+5
State and Municipal	133.2	2,672.6	+26
Total Public	171.8	3,443.9	+21
Total Private	390.8	6,297.8	+26
U. S. Total	$562.6	$9,741.7	+24
By Type of Work			
Waterworks	$5.4	$125.7	+19
Sewerage	23.0	273.4	+64
Bridges	8.3	237.9	+26
Highways	45.2	997.5	+19
Earthwork, Waterways	9.2	293.4	+36
Buildings:			
Public, Excl. Housing	38.2	843.2	+23
Public Housing	15.7	168.0	+39
Private Housing	115.1	2,625.5	−11
Commercial	77.3	842.0	+24
Industrial	191.0	2,518.6	+139
Unclassified	34.2	816.5	−4
U. S. Total	$562.6	$9,741.7	+24

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

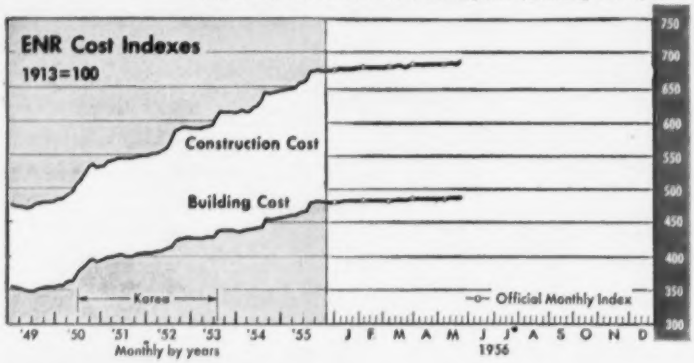
NEW CAPITAL FOR CONSTRUCTION

	Week of May 24	Cum. 21 wks 1956	Chge '55-'56
	$ millions		%
Corporate Securities	$87.0	$1,803.9	+30
State and Municipal:			
All Except Housing	77.8	1,824.5	+13
Housing	...	20.3	−56
Federal Loans	15.9	62.4	+55
Federal Aid	...	...	−100
Total Nonfederal	$180.7	$3,711.1	+16
Federal Appropriations:			
In U. S.	$...	$34.4	−42
Outside U. S.	...	...	...
Total New Capital	$180.7	$3,745.6	+15

Cost Indexes as of Now

ENR INDEXES (1913=100), 20-cities' average	May 24, 1956	% Change from April 26, 1956	% Change from May 26, 1955
Construction Cost	691.63	+1.2	+5.8
Building Cost	488.59	+0.5	+5.4

To convert above indexes to 1926=100: Divide Construction Cost by 2.080; Building Cost by 1.845. 1949=100: Divide Construction Cost by 4.770; Building Cost by 3.518.



BACKLOG OF PROPOSED HEAVY CONSTRUCTION

	1956 (millions)	Percent Change from last Month	Year
Total U. S. (ENR reported)	$98,559	+0.8	+17.3
By Ownership—			
Private	41,695	+1.3	+20.9
State & Municipal	43,910	+0.4	+17.4
Federal	12,954	+0.7	+ 6.6
By Type of Work—			
Waterworks	2,063	+0.6	+20.7
Sewerage	3,023	+0.2	+ 2.5
Bridges	2,826	−0.1	+ 6.9
Highways	11,506	−0.2	+ 7.6
Earthwork, Waterways	11,364	−0.1	+19.4
Public Buildings	17,475	+1.8	+13.0
Industrial Buildings	15,519	+0.4	+26.0
Commercial Buildings	16,808	+2.7	+23.3
Unclassified, Private	9,368*	+0.3	+ 9.9
Unclassified, Public	8,607	−0.1	+30.8
By Regions—			
New England	5,358	+1.8	+ 6.5
Middle Atlantic	20,582	+0.9	+ 8.5
South	11,811	+1.2	+18.7
Middle West	17,517	+0.3	+20.9
West of the Mississippi	22,790	+0.5	+10.2
Far West	20,501	+1.2	+37.6

*Includes private bridges, $81 million.

FLOW OF NEW PROJECTS INTO THE BACKLOG

	1956 (millions) April	4-Months	Percent Change from '55 April	Year-Cum.
Total U. S. (ENR reported)	$1,985	$10,002	− 16	+ 24
By Ownership—				
Private	1,247	5,135	+ 33	+ 55
State & Municipal	576	4,239	− 58	− 8
Federal	162	668	+157	+299
By Type of Work—				
Waterworks	28	143	− 60	+ 3
Sewerage	33	156	− 61	+ 11
Bridges	18	198	− 59	− 57
Highways	101	385	− 89	− 84
Earthwork, Waterways	10	381	− 63	+ 34
Public Buildings	490	1,925	+120	+ 90
Industrial Buildings	461	2,385	− 21	+ 75
Commercial: Mass Housing	480	1,342	+217	+ 44
Other Building	233	935	+ 38	+ 23
Unclassified, Private	72	473**	+100	+ 81
Unclassified, Public	57	1,680	+127	+542

**Includes private bridges, $3 million.

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EXPECT TROUBLE...

GOOD workmanship is one of the most important factors in preventing leaky brick walls.

Good workmanship includes wetting the brick, securing full head and bed joints, backplastering the face brick—*and laying the brick carefully to keep the bond. The position of the brick should never be shifted after the mortar has stiffened.*

Expect trouble when brick are shifted or tapped into place after the mortar has stiffened. Cracks will result and the wall may leak.

Brixment mortar has high water-retaining capacity. It resists the sucking action of the brick. It stays plastic and workable longer. Brixment mortar therefore makes it easy for the bricklayer to lay the brick accurately, before the mortar has stiffened.

Brixment mortar has great plasticity, high water-retaining capacity and bonding quality, great resistance to freezing and thawing, and freedom from efflorescence. Because of this *combination* of advantages, Brixment is the leading masonry cement on the market.

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According to conservative estimates, the thousands of Barber-Greene Finishers throughout the world have started on their second million miles. This million miles has been laid under every conceivable condition, on all types of base, with all types of mix.

The many exclusive features of the Barber-Greene account for this performance record:

Top paving speed: The Barber-Greene will lay any mix as fast as any paving machine now in use with the same surface quality. Widest choice of laying speeds, including the lower speeds needed for difficult mixes, means every job can be done at the maximum speed.

Positive traction: Crawler mounting assures positive traction and steering control even while pushing loaded trucks up steep grades, on slippery primes or on soft bases.

Superior maneuverability: Short length and crawler mounting save valuable time in fast maneuvering or turning around, even in narrow streets or confined areas.

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Proposed work outpaces record awards . . .

Backlog Near $100-Billion

Keeping track of construction activity this year is like watching all three rings simultaneously at the circus. Competition for contractors' attention is getting particularly intense among two star performers on the construction scene—contract awards and proposed work.

While the record-shattering volume of contract awards has been stealing the show, the tremendous flood of new proposed work is entitled to the spotlight, too.

Despite the size of the boom in contracts, the volume of work coming along has been even larger. During the first four months of 1956, projects with a total estimated cost of $10 billion were proposed—24% more than the volume of new jobs that entered the planning stage during the same period last year.

ENR's backlog of proposed heavy construction is drawing close to the $100-billion mark and is certain to pass this figure for the first time in history. It could happen in June, because the backlog, as of April 30, has soared to $98.6 billion. It has skyrocketed 17% since April, 1955.

• Insurance for the Future

The fact that the backlog is climbing so fast even while work is streaming out of the backlog and into the contract stage strengthens the chances of construction activity remaining at its extremely high level in the future.

Construction may not be able to sustain its present rate of growth indefinitely. There may be periods when awards will dip. But, the build-up of the backlog means that the adjustments probably will be brief breathers before the industry begins to climb again.

• Private Work Leads Rise

The sharpest increase in the backlog of proposed projects during the past 12 months has come in the private work category. The $41.7-billion backlog of proposed industrial, and commercial buildings, mass housing, pipelines and other construction is 21% higher now than it was just a year ago. In fact, the total private backlog is now close to the total for all state and municipal public works, which, at the end of April, stood at $43.9 billion, up 17% in the last year. The federal backlog grew more slowly during this period. It now stands at just under $13 billion—up 6.6% since April 30, 1955.

Backlogs of proposed work for all major types of construction are higher today than they were a year ago. The increases range from 2.5% for sewerage to 26% for industrial buildings and 31% for unclassified public works.

• All Areas Gain

Regionally, the backlogs are rising everywhere. Most rapid growth turns up in the Far West, Middle West and South. These regions have backlogs of proposed work that are from 19% to 30% higher now than they were at the same time in 1955.

A 10% rise in the same period has been posted by the region West of the Mississippi. Also growing, although not as fast, are the Middle Atlantic States, up 8.5%; and New England, now 6.5% higher than in April, 1955.

The backlog for April of this year received a substantial boost from four major projects: A $141-million housing development in San Rafael, Calif., planned by David Seymour, of Beverly Hills, Calif., a $75-million Lockheed Aircraft Corp. plant at Dawsonville, Ga., for research and development of atomic powered aircraft for the Air Force; an $80-million aluminum plant proposed by Aluminum Company of America at a site near Boonville, Ind.; and a $50-million "science city," planned as the Southwest Research Center in San Antonio.

What Is the ENR Backlog?

The ENR backlog of proposed work is a continuous monthly inventory of projects in the planning stage. Each month, the sum total of all new projects proposed (based on the engineers' estimates), is added to the preceding month's backlog. At the same time, projects which have advanced from the planning stage to the contract stage are taken out of the backlog—and subtracted from the total.

In addition, the inventory of proposed work is reviewed systematically and projects which have died or have been indefinitely deferred are removed. With this deadwood pruned almost constantly, the backlog is a "live" prospect of the work in store for the industry at any given time.

The April 30, 1956, backlog totals by ownership, by type of work, and by region appear on the Scoreboard (p. 78 of this issue), where they are updated and published each month. The Scoreboard also shows the flow of new projects into the backlog.

Market Grows Fast

Bridge standardization is spur to use of prestressing

The rapid growth of prestressed concrete as a construction material was underscored at the second annual meeting of the Prestressed Concrete Institute, held May 16, 17 and 18 in Miami, Fla. Delegates heard some of their most encouraging news from William Dean, chief bridge designer for the State Road Department of Florida.

Several large pretensioning plants have been set up throughout the state, Dean said, with facilities to produce the standardized bridge piling and bridge stringers developed by the State Road Department.

As a result of the competitive bidding, standardization, and the large volume of bridge construction being let in Florida, prestressed concrete is being used for the bulk of the state's bridges, according to Dean.

Initially, Dean said, the State Road Department felt obligated to furnish designs of all bridges in steel as well as concrete. However, as soon as the effects of mass production and standardization were felt, the prestressed concrete designs consistently brought the low bid.

As a result, the department in the future will limit its designs to prestressed concrete except for very long spans or special cases.

Corridor discussion indicated that several hundred firms are planning to go into the business of manufacturing pretensioned concrete members this year, with the majority of them apparently prepared to make channel decking along with beams for both buildings and bridge work.

New officers elected by the association include: J. Ashton Gray, president of Stresscrete, Inc., Leesburgh, Fla., president; Ben C. Gerwick, Jr., San Francisco, Calif., vice-president; Douglas Cone, Tampa, Fla. secretary-treasurer.

(B&F continued on page 82)

Tight money takes its toll . . .

Backlog Increases as Housing Awards Drop

Amid anguished cries that tight money is putting a serious crimp in housing activity, the Federal Reserve Board this week:

1. **Disclosed that it is planning to ease the money supply slightly** in June through open market operations (buying and selling of Treasury bills).

2. **Noted that soft spots have emerged in the economy** in recent weeks, but said it is not yet convinced the threat of inflation is gone.

3. **Defended its April hike in the discount rate** against critics who contend the subsequent tightening of the money market has worked an unfair hardship on the construction industry.

The Fed's plans to ease the money supply through open market operations in June does not represent a change of policy. The buying and selling of the Treasury bills will be designed to gear money supply to seasonal needs of the economy in the second half of the year and the needs of business to borrow money to pay taxes in June.

• **More money to lend**—By purchasing Treasury bills, the Fed adds to the reserves of the banking system, and by increasing these reserves makes it possible for banks to lend more money. Member banks of the Federal Reserve System must keep an average of 16% of the total amount of deposits on their books on deposit with their district Federal Reserve bank. When the 16% figure is reached, banks cannot accept new deposits or additions to their existing deposits unless they add to their reserves at the district bank.

Answering those who feel the construction industry has been unfairly hit by the April rise in the discount rate, the Fed commented that housing starts and the rise in mortgage debt during the first four months of this year "have been large" compared with any other year except 1950, and also cited record four-month contract awards for both commercial building and industrial building.

ENR's own figures show that homebuilders' complaints that tight money is restricting housing activity probably have some validity. ENR's mass housing contracts have declined 10% under the comparable 1955 period, and May totals are the lowest for any month since late in 1954. But the outlook for the latter part of the year is more encouraging.

• **Backlog of housing climbs**—Best indicator of the builders' confidence in the housing market lies in ENR's backlog of mass housing projects.

The first four months of this year have rung up $1.3 billion worth of new proposed housing—the biggest four-month accumulation of proposed housing activity on record. It is, for example, a bustling 44% greater than the same period last year.

This volume of future construction should reach the contract stage during the second half of this year and during the early part of 1957—providing conditions are right. About 50% of the housing contracts now moving out of the backlog and into the contract stage spend only about six months in the backlog as proposed projects.

The big "if," of course, is money. For five months, mortgage money has been tight and the toll is being felt. Builders are concerned about the slow seasonal rise in private housing starts, now running at an annual rate of 1,100,000 units.

• **Industrial vs. housing**—Some housing interests feel that too much potential mortgage money is being diverted into the financing of industrial plant and equipment. ENR's records show that U.S. businessmen obtained 30% more construction money from the money market this year than they did in the comparable 1955 period. States and municipalities also have competed heavily with housing in the money market, scooping up 13% more this year than they did last year to finance roads, schools and other public works.

Much of this year's surging volume of corporate financing is drawn from advance commitments by bulk lenders, such as banks, insurance companies and pension funds.

Once industry's rush for expansion money begins to taper off, bulk lenders can be expected to step up their mortgage commitments to homebuilders. But, until this happens, mortgage money will remain tight and will prevent any big rebound in housing.

If the money market eases this summer, an upturn in housing starts can be considered a strong possibility by early fall. In fact, the decline in the annual rate of housing starts may have hit its lowest point during the first quarter. If this is the case, some improvement may be noted in the next few weeks.

Big Yukon Project Economically Feasible

Economic feasibility has been confirmed for the huge Frobisher-Ventures metallurgical development and power project for nothern British Columbia and the Yukon (ENR July 21, 1955, p. 25).

The $700-million project, one of the largest ever undertaken by private industry, is expected to reach the design stage sometime this year, according to a progress report made by Frobisher, Ltd., one of the principals.

First part of the project expected to reach the construction stage will be development of 337,500 kw of power on the south Nass River, which is entirely within British Columbia.

The latest Frobisher report said the Nass unit "is capable of early construction without delays caused by international negotiations."

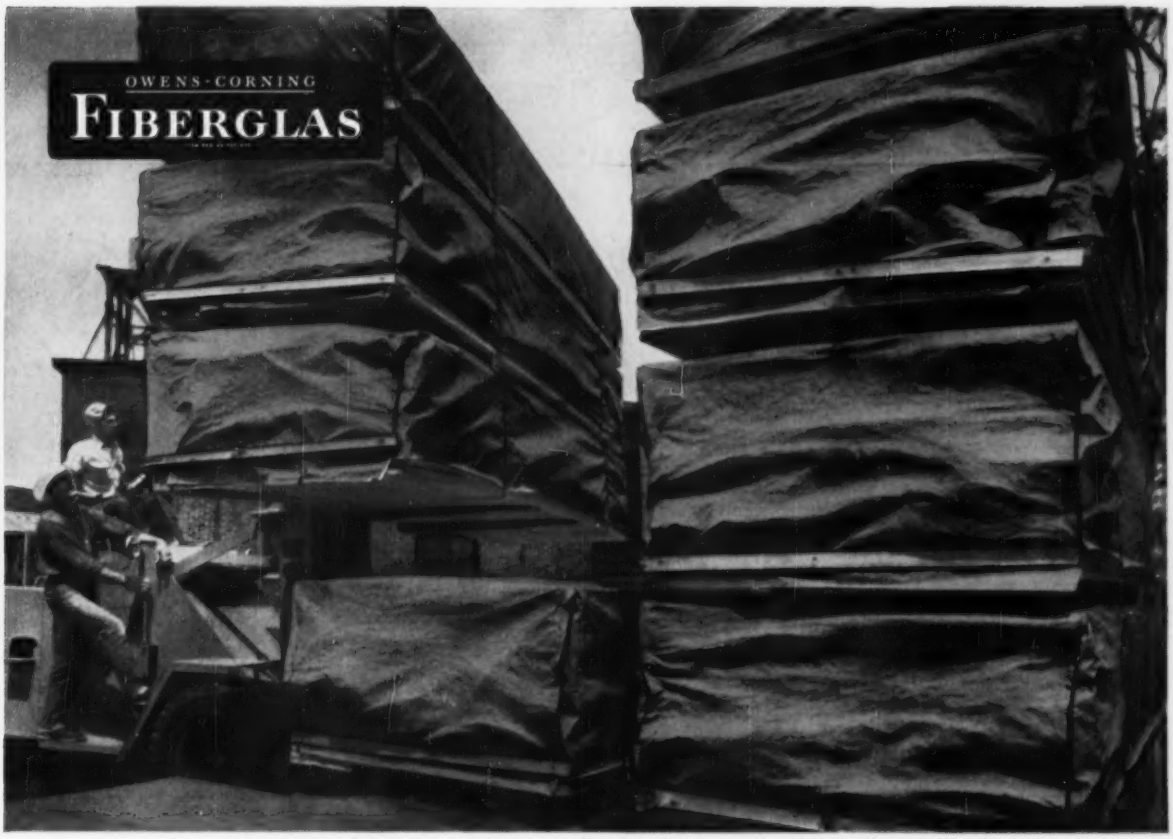
However, the much larger 3,700,000-kw Yukon-Taku project, which will harness the Yukon River's intricate system of inland waterways, has been stalled by international complications. Construction of this unit is not likely until Canada and the United States reach agreement on international power policy.

Despite delays on the Yukon-Taku project, Frobisher apparently feels certain it will eventually be approved. It has announced that both the Yukon-Taku and Nass River projects will be brought to the design stage. Machinery, dams and turbines will be designed this year and orders are expected to go to manufacturers next year.

One reason an early start is considered possible for the Nass River unit is that it can be built now and later integrated with the big northern unit. Or, the Nass River unit can be operated independently.

Frobisher, a subsidiary of the giant Canadian holding company Ventures, Ltd., already has spent an estimated $1 million on engineering studies to determine water volume, select dam sites, and for rock testing and field surveys.

(*B&F continued on page 84*)



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Slum Clearance

Razed land would be used for huge medical center

Representatives of four leading Detroit hospitals last week asked for a $100-million conversion of a mid-town slum area into one of the nation's foremost medical centers.

In presenting the plan to the City Plan Commission, the hospital spokesman said that eventually as much as $2 billion worth of sanitoriums and cultural institutions allied with the medical practice may enter the large area surrounding the four hospitals—Harper, Grace, Woman's and Children's.

Large-scale housing developments are envisaged as an adjunct to the proposed medical center, according to the hospital representatives. They estimated that housing would be needed for about 9,000 employees.

The presentation to the City Plan Commission was made by Ray R. Eppert, executive vice president of Burroughs Corp. and a trustee of Harper Hospital. He asked the Plan Commission to carry the project to the City Council, which would be asked to create a new city department to develop the plant.

An enabling act passed by the Michigan State Legislature in 1949 empowers larger cities to establish such commissions by ordinance for the development of medical practice and education.

Total cost of land acquisition is expected to run $22 million, of which Detroit would pay $7.7 million and the federal government the remainder, under terms of the federal urban renewal act.

Parking Price Tag

Major cities have spent half-billion for parking

Almost half a billion dollars has been spent to date to provide 786,154 parking spaces in 326 major U. S. cities, the American Municipal Association has reported.

Based on a survey of cities with populations of over 25,000, the AMA limited its report to facilities created and owned by local government agencies. Data gathered show that public off-street parking areas in these cities accounts for more than 168,844 spaces, and that an additional 51,567 are planned for 1956. Besides the off-street parking, the reporting cities said that about 480,000 metered curb spaces have been provided for which the meters cost almost $27 million.

The larger cities (over 500,000) plan to invest about $145 million in public parking over the next five years, while smaller cities will spend about $51 million in that time.

Among the states, California cities reported the greatest number of publicly owned parking spaces.

$150-Million Power Plant Planned on Coosa River

Alabama Power Co. and the Georgia Power Co. have announced plans to build a new $150-million electric power generating plant on the Coosa River, in Alabama.

Plans call for completion in two stages. The new plant will have a capacity of 500,000 kw by 1961 and this will be expanded to 1,000,000 kw by 1963, if permission can be obtained form the regulatory agencies.

The plant will be built and operated by a new company, known as Southern Electric Generating Co., to be owned equally by the two utilities. It will be financed through an investment of $25 million in common stock by Alabama Power and Georgia Power (which, they in turn will receive from the Southern Co.), and the new generating company, with this $25 million as a base, will then arrange the balance of its financing.

Circuit Court Validates Florida Turnpike Bonds

The $185-million bond issue for extension of the Miami-to-Fort Pierce Turnpike to the northern limits of Florida (ENR Jan. 19, p. 27), has been validated by the Circuit Court at Tallahassee.

It is expected that construction of the extension will be started by midsummer, even though the bond issue still must be approved by the State Supreme Court.

A number of objections raised before the court on the route location were swept away. A Jacksonville group, among the major dissenters of the proposed route, claimed the turnpike would erect a Chinese Wall around the city and stunt its growth.

This group wanted the turnpike to connect with U. S. 1 about 15 mi below the city, and route its traffic over the Jacksonville expressway system.

The Florida State Turnpike Authority turned down this proposal. Instead, the Turnpike Authority proposed a system of feeder highways into Jacksonville.

Business Briefs . . .

• **Plywood firm has record quarter**—Georgia-Pacific Plywood Co. reported that its first quarter net profit was the largest in the firm's history, $1.9 million compared with $1.4 million for the same period in 1955. Sales for the first quarter totaled $24.2 million, as against $21.8 million in the comparable 1955 period.

• **Correction**—Through error, 1955 sales of the Johns-Manville Corp. were reported as $84.7 million on page 101 of ENR's May 3 issue. The correct figure is $284.7 million.

• **Steel expansion**—Kaiser Steel Corp. will start work immediately on a $113-million expansion of its Fontana, Calif., mill that will increase capacity by 40%. Part of the program will boost Kaiser's structural steel output.

• **AEC headquarters**—The long-discussed new headquarters building for the Atomic Energy Commission has reached the construction stage. AEC awarded a contract for slightly more than $8.8 million to John McShain, Inc., for construction of the four-story structure at Germantown, Md.

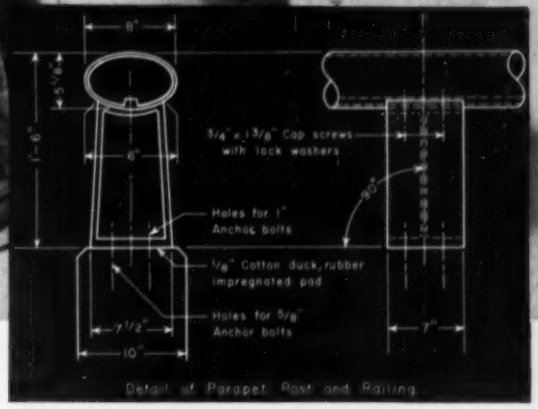
• **Plan Philadelphia stadium**—A nine-member committee named by the Philadelphia City Council and the Mayor to explore the possibility of building a new municipal stadium will ask 15 engineering firms throughout the nation to offer preliminary data—and to recommend architects.

• **Bright Future**—AGC President Frank J. Rooney reiterated an earlier prediction that 1956 will be the first $60-billion year in the nation's history for construction put-in-place, then added that "It is not too much to foresee $75 billion in construction annually within the next decade."

• **Thew sales up**—Thew Shovel Co. sales for the first quarter totaled $11.9 million, a gain of 59% over the same period of 1955. Net income for the first three months was estimated at $688,000—a gain of more than 145% over the same months last year.

• **Study housing components**—The Bureau of Labor Statistics is conducting a special study to determine the types of houses being built and the materials and equipment used in their construction. The study, being financed mainly by the Producers Council, Inc., will be tabulated before the end of the year.

Delaware River Bridge at Edgely, Pa. connecting Pennsylvania and New Jersey Turnpikes. Designed by George S. Richardson, Pittsburgh, Pa. Bridge railings extruded by Michael Flynn Manufacturing Co., fabricated by Fabcon, Inc., erected by the American Bridge Division, U.S. Steel Corp.



Detail of Parapet Post and Railing

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Those bridge rails are *aluminum*, extruded by Flynn. And, they offer decided advantages. For one thing, they're light. Two men can easily install the sections, there's no need for lift-trucks, cranes or large crews. Installation goes much faster.

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Whether it's a custom-designed profile, or one taken from Flynn's tremendous stock of dies, you can count on quality, service and scheduled deliveries. Ask Flynn first, there's no obligation.

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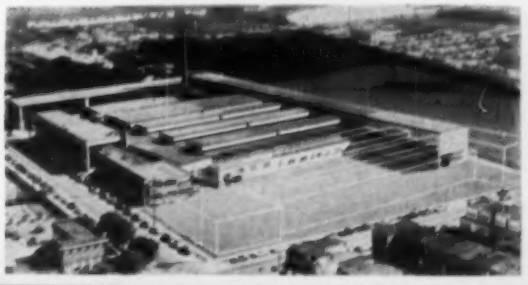

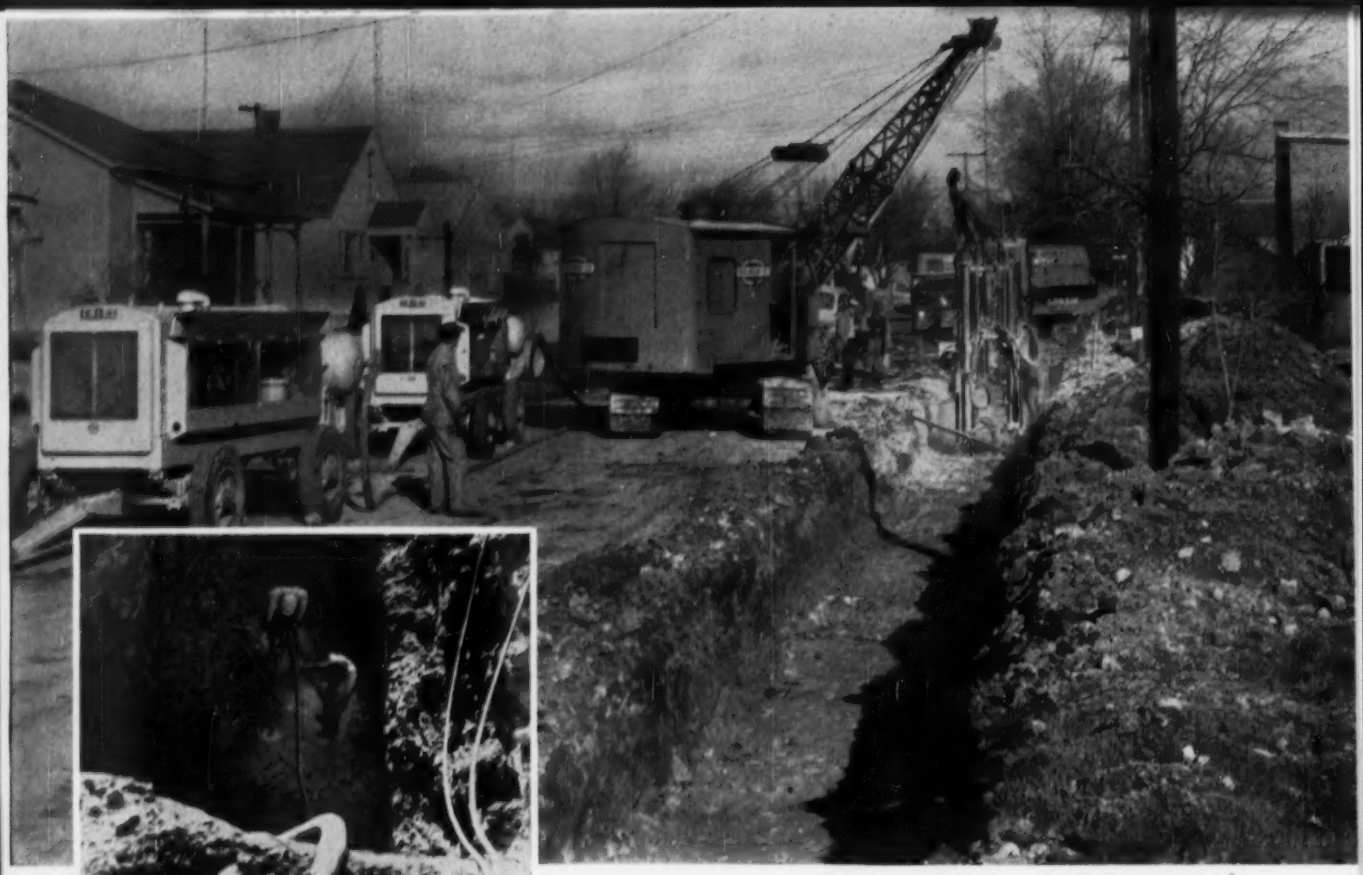

Typical trench depth on $1,000,000 sewer excavation job by Geo. Sheaf & Company. Le Roi air power and Le Roi-Cleveland air tools were used to drill through rock.

Le Roi-Cleveland PL30 Drill Rigs, hung from crane boom, cut production time in half on the rock drilling project by Geo. Sheaf & Company near Tiffin, Ohio. Le Roi 600-cfm portable air compressors, and a self-propelled, 125-cfm Le Roi Tractair provided air power.

Rock-Drill Rig on Sewer Job Speeds Production 50%

Contractor uses Le Roi-Cleveland Air Tools to shoot and pull rock, often 18 feet deep, with one drilling.

The right air tools made quite a difference on a $1,000,000 sewer excavation near Tiffin, Ohio. Joseph Parker, General Superintendent of Geo. Sheaf & Company, Columbus, Ohio, states, "In nearly seven months of service in hard limestone, our Le Roi compressors and Le Roi-Cleveland Rock Drills had no down time, while in continuous operation 8 to 16 hours per day. They have performed to our utmost satisfaction. By using Le Roi-Cleveland PL30 Drill Rigs, we lowered our drilling costs and speeded production by 50 per cent."

Flexibility of special drill rig was a major factor in job speed-up. The Le Roi-Cleveland PL30 Drill Rigs provided unusual flexibility and ease of operation. This specially-designed rig, developed for rock work on pipeline projects, allowed the contractor to obtain proper drilling patterns for safe blasting in residential areas. Thus he cut construction time in half because he could shoot and pull the rock with only one drilling.

The Contractor standardized on Le Roi-Cleveland Air Tools using two PL30 Drill Rigs, two Model 52 Breakers, and two H10B Sinker Drills, plus hose, drill steel, and rock drill bits.

Le Roi air power helped speed up this project. Two Le Roi 600-cfm portable air compressors, and one self-propelled Le Roi Tractair (a combination 42-hp. wheel tractor and 125-cfm air compressor) were used.

This combination of Le Roi air power and Le Roi-Cleveland air tools gave the contractor exceptional drilling economies, including manpower savings, less upkeep, and more footage per shift.

LE ROI Division of Westinghouse Air Brake Co., Milwaukee 1, Wisconsin, manufacturers of Cleveland air tools, Tractair, portable and stationary air compressors, and heavy-duty industrial engines. Write us for information on any of these products.

The AFL-CIO Looks at Itself

The AFL-CIO has reaffirmed on several fronts this month its faith in unity and in its goals.

On three occasions, leaders of the labor movement have carefully noted several things: the merger isn't on the rocks; union racketeering and corruption are an exception to the rule; most labor disputes are amicably settled; labor isn't engaged in a class struggle; the trade union movement seeks to serve the welfare of all.

The unanimity of expression looked like a determined effort to put into the "right" perspective a number of incidents that have plagued the merger. Among them are the dispute over in-plant construction between the building trades and industrial unions; the controversial and now dead teamsters' alliance with the International Longshoremen's Association; the current Meany-Reuther disagreement over Nehru's policies in India; and corruption charges recently leveled against some affiliates, including two in the building trades.

The three occasions were dedication of the new AFL-CIO machinists' headquarters in Washington, D. C., an address by AFL-CIO Secretary-Treasurer William Schnitzler at the Corps of Engineers' Command Management School in Fort Belvoir, Va., and the triennial convention of the Ladies Garment Workers Union in Atlantic City, N. J.

Some of the incentive for labor's recapitulation stemmed from its criticism of the nation's press, which Schnitzler described at Fort Belvoir as "a barrier rather than an avenue to public understanding" of labor's activities and objectives. To many, there's been an undue emphasis on conflict and dissension, "misleading" the man in the street as to what the trade union movement is and as to where it's headed.

• The Common Good

At the machinists' ceremonies in Washington and again at the Atlantic City convention, President George Meany took a look at the scoreboard and had this to say:

• The AFL-CIO no-raiding pacts—springboard for the merger itself—should be revised with consideration given to the traditional jurisdiction of union affiliates, after a solution has been found to some of labor's more pressing problems.

• Despite emphasis of the press on union racketeering, "actual indictments have been few and far between," and only "a tiny minority of the tens of thousands of trade union officials" have been involved.

• Labor will vigorously continue to do its own "house cleaning" on all fronts, including elimination of dual allegiance where officials are serving two masters—business and labor.

• The sole purpose of unions is to serve their members.

• The federation's internal dissensions mark numerically minor areas of disagreement and will not interfere with the ultimate success of the merger.

• Better Labor Relations

Exploring another area at Fort Belvoir, Secretary-Treasurer Schnitzler said labor has engaged in "relatively few" strikes, despite a contrary impression created by the press. Citing the fact that 75,000 to 100,000 agreements are signed without any work stoppage, he described the record as a "tribute to the increasing maturity of labor-management relations." Among his other points were these:

• Labor has no desire to dominate other economic groups or to "control management." The merger isn't a monopoly in the business sense.

• The merger does not affect collective bargaining—employers deal with individual unions, not the federation.

• Labor wants employers to be successful. "We do not begrudge ownership its profits . . . we realize that successful industry is necessary for our own success in enriching the economic status of our members." But the converse, he noted, is also true—labor's economic gains are essential "to the long-run success of industrial enterprise."

• A basic objective of the merger is to cut down on the "wasteful squabbling of a divided trade union movement" and to "build through unity a higher degree of stability in union-management relations to the benefit of all."

• Wrongs Not Approved

At the dedication ceremonies in Washington, machinists' President A. J. Hayes noted that labor's "worthy" objectives and accomplishments are "never highlighted in the public press."

"Our mistakes and our wrongs," he said, speaking in a relative sense, are "no greater in number or degree than the mistakes and wrongs of any other segment or institution in our society . . . we neither approve nor condone the wrongs committed in the name of organized labor . . . we recognize that it is an important part of our responsibility to stamp out such activities."

Looking toward the future, Hayes described labor's principal task as that of obtaining for "an ever greater number of people a greater measure of justice, equality and dignity," and more economic and social benefits.

A Seven-Hour Day

Western carpenters tie demand to automation

Automation is behind a drive for a seven-hour day at present take-home pay by West Coast carpenters.

Efforts to obtain paid vacations and paid holidays have been shelved. Priority is given to the more basic issue of spreading work around by use of a shorter work day. Characterized as "long range planning," the action is designed to cushion the effects of unemployment that may be caused in the future by the joint forces of higher productivity and a building recession.

In the current issue of the carpenters' monthly journal, "The Carpenter," the California unit is reported to feel that automation is not restricted to the automatic control of machines by machines, and therefore does affect the construction industry.

The carpenter's more elastic definition embraces technological developments that have boosted productivity and decreased man-hours of work available. Examples cited are use of the precast concrete tilt-up method of construction and precast and prestressed concrete shapes in heavy construction; use of concrete floor slabs, precut studs, prefabricated windows, prefit doors, and new types of sheathing in the building field; and use of radial and skill saws, portable routers and electric planes.

To the western carpenters, the situation is one that can "drastically affect" their livelihood, becoming a serious problem when the construction boom slows down. "A seven-hour day with the present take-home pay," they say, "has to be achieved so that we may be able to control the situation later on."

(*Labor continued on page 88*)

Jurisdictional disputes produce a . . .

Peace Pact for the Coliseum

Organized labor took the initiative last week in finding a permanent solution to the jurisdictional problems that have plagued New York City's new $35-million Coliseum since it opened a month ago.

Under the leadership of Martin T. Lacey, president of the Central Trades and Labor Council, AFL-CIO unions engaged in the erection, maintenance and dismantling of Coliseum exhibits have agreed to settle their jurisdictional disagreements among themselves and made a suggestion—now accepted by the Coliseum Exhibition Corporation— that a labor-management committee be formed to prevent the use of illegitimate charges and practices under the guise of union regulations, and, at the same time, to assure that union scales be upheld.

Both the Building and Construction Trades Council and the Carpenters District Council were represented at the union meeting that produced the formula.

Behind the meetings lay a number of charges of poor workmanship, excessive costs and delays experienced by exhibitors, while the unions jostled for position in the establishment of jurisdictional patterns in a new enterprise. Typical of the problems was a conflict between carpenters and stage hands over the right to handle crating. One of the shows that complained the most was the International Home Building Exposition which closed May 20. A snowballing factor in the overall picture was—and is—the inevitable necessity of frequent round-the-clock work, entailing overtime which means double time for many of the trades under prevailing scales.

Although the conflict over "who does what" got the operation of the Coliseum off to a bad start, the situation hasn't been unique. Similar problems currently exist in a number of projects across the nation. Some relate to the basic jurisdictional dispute between craft and industrial unions (ENR May 24, p. 107), while others stem from the overlapping and conflicting jurisdictional interests that exist among craft unions themselves Except where the Taft-Hartley Act or local laws can be invoked, the solution must be found voluntarily.

In announcing the settlement formula, Arthur Smadbeck, president of the Coliseum Exhibition Corporation, said Lacey has done the City of New York "a great service" and expressed the conviction that the plan will afford "a complete solution" to the difficulties encountered.

Other jurisdictional disputes that are plaguing construction management and labor in other areas include:

- A conflict between carpenters and lathers over installation of acoustical ceilings in the Coliseum at Kentucky's new State Fairgrounds and Exposition Center, and in a Catholic high school in Philadelphia.
- Disagreement between electrical workers and steamfitters over installation of air conditioning, ventilation, laundry and bakery equipment in a new hospital near Pittsburgh.
- A dispute between laborers and iron workers and riggers as to who should handle stone for piers being built by Dravo Corporation for the Mississippi River Bridge in New Orleans.
- A protest by teamsters and carpenters against water service installation work by city employes at a housing development in Cincinnati.
- A clash between auto workers and steamfitters over industrial installation of air conditioning units in a Plainfield, N. J., manufacturing company.

In some cases, settlements have been attempted on the local level, or between the unions on the international level. In other instances, the disputes have gone to the construction industry's National Joint Board for the Settlement of Jurisdictional Disputes. And some may have to wait for the AFL-CIO Building Trades and Industrial Union Departments to find a controlling solution.

Compulsory Savings Plan for Plumbers

A compulsory savings plan—which will afford financial assistance during periods of unemployment—has been negotiated for northern California plumbers. It's included in a new three-year contract that grants a package wage increase of 85 cents.

Elsewhere, contract negotiations have produced a damage suit stemming from disagreement over use of mastic adhesive in tile installation, and, in Texas, the Sabine area is still in the grips of one of the longest construction strikes in labor history.

• **Savings plan**—Funds accumulated in the plumbers' savings plan, effective July 1957, will be available to employes for emergencies. Maximum amount that can be drawn for unemployment will be $100 a week, less the amount of state benefits received. The fund, into which next year's 25-cent increase will be paid, will be administered by a labor-management group.

The new contract grants three successive annual wage boosts of 25 cents each, and adds another 10 cents to fringe benefits, bringing the plumbers' pay to $3.45 plus 46 cents in fringe benefits. Covering 2,200 members of Local 38 in four counties, the contract was negotiated by the Heating, Piping and Air Conditioning Contractors of Northern California, Associated Plumbing Contractors of San Francisco, and Marin County Master Plumbers Association.

• **Tile dispute**—And in the San Francisco area, ten firms have filed a $20,000 damage suit against the Peninsula Tile Contractors Association and the tile layers union, on strike since May 7 in San Francisco, Alameda, and parts of Contra Costa Counties.

Reason for the strike, say East Bay contractors, is failure to agree on specifications for use of mastic adhesive in the installation of tile where moisture is prevalent. The suit charges that in a contract with Peninsula Contractors, competitors of the East Bay group, the union has agreed not to work for those who won't go along with the union's request for restrictive changes in adhesive use.

Those who have already signed new contracts have agreed to a 12-cent wage increase—and with this the East Bay group is reported to have no quarrel.

• **Texas strike**—In Texas, the multi-million-dollar construction strike in the Sabine area moved into its seventh week with deepening pessimism on the part of both labor and management.

Contract settlements with Port Arthur painters and millmen, Beaumont painters, and carpenters throughout the area—mostly two-year contracts with a package increase of 25 cents—hadn't opened the floodgates. Nor had the AGC's one-year 17½-cent contract with operating engineers.

Striking unions include pile drivers, millwrights, iron workers, teamsters, pipefitters and engineers. Their goal: a 6% increase or a 15-cent minimum.

ILO Safety Report

Notes role of engineers, architects and educators

The International Labor Organization told the construction industry this month that the field of vocational training seems "to offer the greatest scope for immediate action" in cutting down the number of accidents on construction sites.

In a safety report presented to the ILO building, civil engineering and public works committee, which has been meeting in Geneva, Switzerland, for the last two weeks, the ILO concluded that "the need for greater safety in the industry could not be more acute." It noted, for example, that 3% of the Europeans who enter the industry at the age of 18 are killed while at work before they reach the age of 65.

Stressing the seriousness of the problem even in "advanced countries", the report discussed the economic as well as the human losses involved. Exposure to the elements, high labor turnover, and the temporary nature of job sites were mentioned as conditions that hamper safety, and excessive enthusiasm for rapid completion was listed as a factor with "serious implications."

Among the suggestions contained in the report were these:

- Architects, and engineers should be thoroughly familiar with safety rules and regulations, and in drawing plans should provide for the safety of both construction workers and maintenance men. Safety precautions should be considered an integral element in the cost of the job.
- Designers and manufacturers of construction machinery and equipment should provide greater margins of safety for operators, especially where the equipment will be subject to rough handling and extreme fluctuations in temperature and humidity.
- The need for safety should receive greater emphasis in the training of architects, engineers and construction workers. One of the big jobs is to teach the "consequences of apparently harmless acts."
- Some thought might be given to putting a clause in collective bargaining agreements that will protect the security of those who refuse to work under unsafe conditions.

Representatives from 20 countries attended the ILO committee meeting on construction problems. Russia sent a tripartite delegation of observers.

OFFICIAL PROPOSALS

Bids: June 15, 1956

Power Authority of The State of New York

ST. LAWRENCE POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY OF TRASH RACKS, STOP LOGS, LIFTING BEAMS AND GATE SUSPENSION METALWORK
FOR
BARNHART ISLAND POWER PLANT, LONG SAULT DAM AND MASSENA INTAKE
SPECIFICATIONS NO. PA-5-15055
ST. LAWRENCE CONTRACT NO. P39

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the manufacture and furnishing of two hundred and forty (240) trash racks, thirty-four (34) stop logs, four (4) lifting beams and one lot of gate suspension metalwork and delivery thereof f.o.b. destination in the following ways:

(1) If brought in person on the day of receiving bids until 10:30 A.M., Eastern Daylight Saving Time on the 15th day of June, 1956, 270 Broadway, Hearing Room C on the sixth floor, New York 7, New York.

(2) If mailed in, until 10:15 A.M., Eastern Daylight Saving Time, on the 15th day of June, 1956, at the Authority's Office, 270 Broadway, Room 1300 New York 7, New York.

The proposal will be publicly opened and read aloud at the time and at the address given in (1) above.

Bids will be entertained for fabricated steel metalwork having a total weight of approximately 1200 tons.

Bids will not be restricted to American manufacturers.

Plans, specifications and proposal forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours, and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of Twenty ($20.00) dollars per initial set of contract documents and Ten ($10.00) dollars per set for additional sets, no part of which will be refunded. Two sets must be returned with each bid.

Bids must be made in duplicate upon the proposal forms included in and bound with the Contract Documents. A bid deposit will be required with each bid in an amount not less than 10 percent of the gross sum bid in the bid schedule.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: June 21, 1956

Dearborn-Melvindale Disposal Authority Dearborn, Michigan

NOTICE TO CONTRACTORS

Sealed bids for Construction of Building for the Dearborn-Melvindale Refuse Incinerator will be received at the office of the Chairman of the Authority, Second Floor, Department of Law, Dearborn City Hall, Dearborn, Mich., until 10:00 a.m. Eastern Standard Time, on June 21, 1956.

Work includes construction of a proposed building to house incineration and appurtenant equipment. Four 175-ton incinerator units, certain appurtenant equipment, and the chimneys shall be provided under other contracts.

Contract drawings and documents may be examined and obtained at above office, and office of Metcalf & Eddy, Engineers, 1300 Statler Bldg., Boston, Mass., weekdays except Saturdays and holidays; $100 deposit.

Bid security: $50,000 cashier's or certified check; 100% Performance and Lien Bonds required.

BOARD OF TRUSTEES
DEARBORN-MELVINDALE
DISPOSAL AUTHORITY
By:
Dale H. Fillmore, Chairman

OFFICIAL PROPOSALS

Bids: June 5, 1956

Indiana Toll Road Commission 309 W. Washington Street Old Trails Building Indianapolis, Indiana

NOTICE TO BIDDERS
Contract T.M.-1

Sealed proposals will be received by the Indiana Toll Road Commission at or before 10:00 A.M., Central Standard Time, June 5, 1956 for the performance of the contract enumerated above.

Contract T.M.-1, Traffic Markings, consists of furnishing and applying reflectorized paint traffic markings on the pavement of the Indiana East-West Toll Road including the interchanges, parts of the service areas, and access roads. This work is located along the route of the Indiana East-West Toll Road in Steuben, LaGrange, Elkhart, St., 930 St. Joseph, LaPorte, and Lake Counties, Indiana.

Copies of the plans, Standard Specifications, Supplemental Specifications for Traffic Marking and Proposal forms for said contract are available for public inspection or purchase at the office of the Chief Engineer, Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. These documents may be purchased from said Chief Engineer for the following sums, per set, which sums are non-returnable. Standard Specifications for the Indiana East-West Toll Road.....$5.00
Plans and Proposal Forms.....$8.00
Supplemental Specifications for Traffic Markings.....$2.00

All Proposals must be on the form prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Contractor's statement for qualification on the forms supplied by the Commission will be required from all bidders.

Each Proposal must be accompanied by a Proposal Guaranty in the amount of five (5%) per cent of the total price bid for the contract. The Proposal Guaranty shall be in the form of an acceptable surety bond or certified check on a solvent bank.

If the Bidder is an out of state corporation, he shall be required to furnish a certification from the Secretary of State of Indiana as evidence that the corporation has complied with the Indiana Foreign Corporation Statutes, and that the corporation is authorized to transact business in the State of Indiana.

All bids must be received at or before 10:00., Central Standard Time, June 5, 1956, in the offices of the Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. At said hour, the bid box will be publicly opened and the bids read.

The award of the above Contract, of any award be made, will be to the Bidder whose Proposal is lowest and best for the performance of the work, and complies with all the prescribed requirements. The Commission reserves the right to reject any or all proposals and to waive technicalities.

INDIANA TOLL ROAD COMMISSION
Dr. Dillon Geiger
Chairman

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4706) will be received at Glendo, Wyoming, until June 28, 1956, for furnishing labor and materials for Earthwork, Structures, and Surfacing for Relocation and North Grade Raise, Wyoming State Highway, U.S. No. 87, Glendo Dam and Reservoir, Missouri River Basin Project, Wyoming. Location near Glendo, Wyoming. Principal items are 739,700 cu. yds. excavation for roadway; 76,500 cu. yds. crushed rock base; 5,250 cu. yds. pit run gravel; 27,640 cu. yds. mineral aggregate for plant mix bituminous surfacing; 1,580 tons liquid asphalt; 230,000 pounds furnishing and erecting structural steel; and other work. Completion time 330 days. For particulars, address Bureau of Reclamation, P. O. Box 127, Glendo, Wyoming; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.10 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record, 330 West 42nd Street, New York 36, N. Y.

Bids: June 7, 1956

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 7th day of June 1956, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 9, Jos. C. Fredrick, District Engineer, 71 Frederick Street, Binghamton 21F, N. Y.						
Delaware	FARC 56-17 R.C. 56-18	Andes-Margaretville, S.H. 8017 Margaretville-Halcottsville, S.H. 5384 Project S-450(1)	0.48	9" Cem. Conc. Pavt. 32'-40' Wide=0.36 Mi. Asph. Conc., Opt.=0.09 Mi. Misc. Work=0.03 Mi.	$19,000 Plans $15	$335,000
DISTRICT No. 10, M. E. Gora, District Engineer, Montauk Highway at Little East Neck Rd., Babylon, L. I., N. Y.						
Bronx	FICBE 56-1	Cross Bronx Expressway Contract 7 (Fulton Ave. to Longfellow Ave.) Project IN-1084(23)	1.66 (1.84) (Acc.)	9" Cem. Conc. Pavt. with Carbon Black 2 @ 36' Wide=0.82 Mi. Misc. Work=0.18 Mi. (Acc. Rd. Cem. Conc. Pavt.=0.28 Mi.) (Acc. Rd. Sheet Asph.=1.56 Mi.) 4 Hy. Sep. Rig. Frames, 98', 84.5', 99', & 99' 1 Hy. Sep. R.C. Arch 110.4' 1 Hy. Sep. Steel Girder 116.4'	$520,000 Plans $100	9,520,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

Bids: Prequalification Date: June 7, 1956

Board of Education
Bureau of Construction

Notice Re Prequalification Forms for Contractors

NOTICE IS HEREBY GIVEN THAT THE Director of the Bureau of Construction, 4th Floor, 42-15 Crescent Street, Long Island City 1, New York, will receive applications for prequalification of bidders, from contractors who may wish to submit bids for the proposed hereinafter specified contracts, as follows:

For general construction, plumbing and drainage, heating and ventilating, electrical work and lighting fixtures for:

BOROUGH OF THE BRONX
Public School 8, East 201st Street, Mosholu Parkway, Briggs and Bainbridge Aves., New Building.

BOROUGH OF MANHATTAN
Junior High School 45, 120th Street, between 1st and 2nd Aves., New Building.
Junior High School 52, Broadway and Academy Street, New Addition and Modernization.

Prequalification application forms will have to be secured from and must be submitted to the Director, Bureau of Construction Office, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City, New York.

Bids when advertised will be received from prequalified bidders only.

The time for submitting prequalification application forms for the above contracts will expire on Thursday, June 7, 1956.

WILLIAM H. CORREALE
Director

Dated: May 23, 1956.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4702) will be received at Medford, Oregon, until July 2, 1956, for furnishing labor and materials for Deadwood Tunnel, Rogue River Basin Project, Oregon. Location near Medford, Oregon. Principal items are 34,000 cu. yds. excavation for inlet and outlet channels; 5,525 cu. yds. excavation in tunnel; 96,000 pounds furnishing and installing permanent steel tunnel supports; 1,950 cu. yds. concrete in tunnel lining; and other work. Completion time 500 days. For particulars, address Bureau of Reclamation, P. O. Box 629, Medford, Oregon; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

Department of Commerce, Bureau of Public Roads, May 16, 1956. SEALED BIDS will be received at the office of the Bureau of Public Roads, Gatlinburg, Tennessee, until 11:00 a.m., E.S.T., JUNE 14, 1956, for Project 2Y1a, Blue Ridge Parkway, Jackson County, North Carolina. Slope stabilization, crushed gravel or crushed stone base course, construction of overpass and other work from Wolf Laurel Gap 3.451 miles to Big Witch Gap. The approximate quantities of the more important items are as follows: 111,300 cu. yd. Excavation, 24,000 tons Crushed Gravel or Crushed Stone, 300 cu. yd. Concrete, and 2,800 units of Seeding. Minimum wage rates have been fixed as required by law. Plans, specifications and proposal forms are available upon request at the office of the Division Engineer, 1440 Columbia Pike, Arlington, Virginia, or at the address given above. H. J. Spelman, Division Engineer.

Contractors Watch This Section —

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

OFFICIAL PROPOSALS

Bids: June 7, 1956

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 7th day of June 1956, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. Nickerson, District Engineer, 353 Broadway, Albany, N. Y.						
Albany	Ch. 103/11/45 | #2 Ch. 52/10/55 /	County Assistant's Office and Garage at Voorheesville	....	Asp. Conc., Opt., Grading, Paving & Misc. Work	$1,800 Plans $10	$33,000
Saratoga	Ch. 103/11/45 | #3 Ch. 52/10/55 /	County Assistant's Office and Garage at Saratoga	....	Asp. Conc., Opt., Grading, Paving & Misc. Work	$3,300 Plans $10	59,000
Albany	R.C. 56-32	Loudon Pt. 2, S.H. 110 Loudon-Crescent, S.H. 5555 Loudon-Crescent, Pt. 2, S.H. 5614	6.43	Asp. Conc., Opt.	$13,500 Plans $10	251,000
Greene & Ulster	FASSH 56-10 FARC 56-82	Phoenicia-Stony Clove, Pt. 1, Hwy. No. 214-2-1 Phoenicia-Kaaterskill Junction, S.H. 9048 Project S-937(4)	3.98	Bit. Mac. Pen. Meth., Ty. 1; 2 R.C. Closed Box Brs. 22.6' and 28.3'; Comp. I-Beam Br. 42'	$45,000 Plans $25	815,000
Rensselaer	R.C. 56-33	Cropseyville-Grafton, S.H. 5222 Grafton-Petersburg, S.H. 5478	3.93	Asp. Conc., Opt.	$7,000 Plans $10	135,000
DISTRICT No. 2, Lacy Ketchum, District Engineer, 109 No. Genesee St., Utica, N. Y.						
Madison & Oneida	FASH 56-2 FARC 56-34	Oneida-South Bay, Pt. 1, S.H. 1110 City of Oneida: North-South Arterial Connection Project U8-458(1)	1.04	9" Cem. Conc. Pavt. 24' Wide Comp. I-Beam Br. 161'	$25,000 Plans $15	450,000
Oneida	FAC 56-5 FAGC 56-6	City of Utica: North-South Arterial Route (Oriskany Street West-Riverside Drive) Project U-UG-752(6)	1.20 (0.55) (Acc.)	9" Cem. Conc. Pavt. Var. Wide=0.51 Mi.; Asp. Conc., Ty. 1A=1.15 Mi.; Misc. Work=0.09 Mi.; 2 RR. Sep. Comp. I-Beams 493.2' and 556.9'; 1 Hy. Sep. Comp. I-Beam 240.3'; 1 Br. Comp. I-Beam & Plate Girder 298'	$250,000 Plans $50	4,527,000
DISTRICT No. 3, William Robinson, District Engineer, Weigh Lock Building, Syracuse, N. Y.						
Tompkins	R.C. 56-29	Taughannock State Park-Ithaca, S.H. 1921	5.25	Asp. Conc., Type 1A	$13,000 Plans $10	237,000
Tompkins	R.C. 56-30	Ithaca-Danby, Pts. 1 & 2, S.H. 5043-5122	5.83	Asp. Conc., Type 1A	$12,000 Plans $10	233,000
DISTRICT No. 4, B. F. Perry, Acting District Engineer, Barge Canal Terminal, Rochester, N. Y.						
Monroe	FAC 56-3	City of Rochester: Inner Loop (South Ave. to George St.) Project U-UG-231(9)	0.54 (2.04) (Acc.)	Asp. Conc., Type 2A; 3 Hy. Seps. Comp. I-Beams; 101.5', 119.9' and 131.8'; 1 RR Sep. Comp. I-Beam 174.8'	$160,000 Plans $100	2,939,000
DISTRICT No. 5, E. G. H. Youngmann, District Engineer, 65 Court St., Buffalo, N. Y.						
Erie	R.C. 56-31	Depew Village, S.H. 916 Genesee Street, Pt. 1, S.H. 1212	4.43	Asp. Conc.; Type 2A	$20,000 Plans $10	361,000
Erie	R.C. 56-35	Main Street, Pt. 1, S.H. 69	3.13	Asp. Conc., Type 2A	$19,000 Plans $10	354,000
Erie	R.C. 56-36	Sheridan Drive, S.H. 9216	6.83	Asp. Conc., Type 2A=6.80 Mi. Misc. Work=0.03 Mi.	$30,000 Plans $10	546,000
DISTRICT No. 6, J. H. Thomas, District Engineer, 30 W. Main St., Hornell, N. Y.						
Steuben	FASS 56-4	Webbs Crossing Road, CR #66 Project S-447(1)	0.26	Asp. Conc., Opt. Comp. I-Beam Br. 115'	$8,000 Plans $10	152,000
DISTRICT No. 7, W. C. Bassette, Acting District Engineer, 444 Van Duzee Street, Watertown, N. Y.						
Jefferson	FAC 56-4	City of Watertown: Bradley Street Project U-745(3)	0.86	Asp. Conc., Opt.=0.84 Mi.; Misc. Work=0.02 Mi.; R.C. Twin Box Br. 30'	$19,000 Plans $15	353,000
DISTRICT No. 8, Kurt G. Rauen, Acting District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Dutchess	TSP RC56-3	Taconic State Parkway, Sect. 3 and 4 (Incl. Shenandoah Gas Sta. Area)	3.49	Asp. Conc., Opt.	$4,500 Plans $10	80,000
Rockland	R.C. 56-27	Tompkins Cove-West Haverstraw, S.H. 8049	0.18	Cem. Conc. Sidewalks and Curbs	$550 Plans $10	10,000
Orange & Sullivan	FARC 56-80	Bloomingburg-Monticello, Pt. 1, S.H. 5510-5510A Middletown-Bloomingburg, S.H. 5210-5210A-5210B Goshen-Fair Oaks, Pt. 3, S.H. 47-11 Bloomingburg-Bullville, S.H. 8166 Project F-405(9)	6.63 (4.44) (Acc.)	9" Cem. Conc. Pavt. 2 @ 28' Wide=7.99 Mi.; Asp. Conc., Opt.=2.67 Mi.; Fdtn. Cse. Grav.=0.25 Mi.; Treated Gravel=0.08 Mi.; Misc. Work=0.08 Mi.; 5 Hy. Seps. Comp. I-Beams 175.1', 267.5', 127.9', 114.6' and 227'; 1 Br. Comp. I-Beam 158'	$400,000 Plans $100	7,371,000
District No. 9, F. J. Weber, Acting District Engineer, 71 Frederick Street, Binghamton, N. Y.						
Broome	FASS 56-3	Deposit-Oquago Lake Project S-269(1)	0.07	Asp. Conc., Opt. Comp. I-Beam Br. 100'	$7,000 Plans $10	131,000
DISTRICT No. 10, M. E. Gogl, District Engineer, 325 W. Main Street, Babylon, L. I., N. Y.						
Bronx	FAMDE 56-1	Major Deegan Expressway and Extension, Cont. 18 Project U-1082(22)	7.33	Landscaping and Misc. Work	$18,000 Plans $15	324,000
Bronx	FANETC 56-3	New York State Thruway-New England Section, Cont. #4 (Hutchingson River Pkwy.-Westchester Ave.); Bronx-Pelham Pkwy. and Access Roads Project IN-1068(11)	6.91 (3.59) (Acc.)	9" Cem. Conc. Pavt. 2 @ 36' & Var. Wide=2.94 Mi.; Misc. Work=1.56 Mi.; Hy. Sep. Comp. I-Beam 205'; RR. Sep. Plate Girder 346.1'	$250,000 Plans $100	4,512,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

Read the Official Proposal Columns of

ENGINEERING NEWS-RECORD

This Week and Every Week

OFFICIAL PROPOSALS

Bids: June 7, 1956

Soil Explorations and Foundation Investigations

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A. M., Eastern Daylight Saving Time, on June 7, 1956, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES IN INTERSTATE ROUTE 1, SECTIONS 7B & 7C TOWNSHIPS OF PLATTSBURG, BEEKMANTOWN, AND CHAZY, CITY OF PLATTSBURG, CLINTON COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEC. SM-87

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York.

(b) Mr. W. C. Bassette, Acting Dist. Engr., 444 Van Duzee Street, Watertown, New York.

(c) Mr. William M. Trainer, Associate Contract Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.
The Engineer's estimate of cost for this work is $38,350.
Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $1,920. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders."

The right is reserved to reject any or all bids.

J. W. JOHNSON
SUPERINTENDENT OF PUBLIC WORKS

Bids: July 6, 1956

Commonwealth of Puerto Rico Department of Public Works

NORTH EXPRESSWAY PUMPING STATION
MUNICIPALITY OF SAN JUAN, P. R.
ADVERTISEMENT
May 21, 1956

The Board of Awards of the Department of Public Works of Puerto Rico will receive sealed proposals for the furnishing of equipment for and constructing the North Expressway Pumping Station, Municipality of San Juan, Puerto Rico.

Bidders shall submit their proposals at the office of the Board of Awards in the Department of Public Works until 2:00 P. M. (Puerto Rico time) on July 6, 1956 at which time and place said proposals will be publicly opened and read aloud.

The work to be performed is divided into four (4) sections under which the work is classified according to its character. The principal items of work are as follows:

Section A—Furnishing and delivering C.I.F. San Juan, Puerto Rico, four (4), five (5) or six (6) electric motor driven drainage pumping units, one (1) of fifty thousand (50,000) gallons per minute capacity and three (3), four (4) or five (5) of one hundred thousand (100,000) gallons per minute capacity, complete with their motors, mechanisms and appurtenances, together with the services of an expert to supervise the installation and testing of the equipment.
Section B—Furnishing and delivering C.I.F. San Juan, Puerto Rico, one (1) thirty (30) tons capacity gantry crane with one (1) two (2) ton capacity auxiliary hoist, having a span of six (6.0) meters center-to-center of rails and a maximum lift of seven (7) meters above the tops of rails, together with the services of an expert to supervise the installation and testing of the equipment.
Section C—Constructing the North Expressway Pumping Station including receiving and suction well, superstructure, outside connecting piping, roadways and paths, grading, fencing, miscellaneous structures and appurtenances and the installation of pumping equipment and the gantry crane furnished by others.
Section D—Furnishing and installing all electrical equipment, wiring and controls required for the North Expressway Pumping Station including switchgear, switchboards, controls, conduit, wiring, connections and accessories.

Copies of the plans, specifications and instructions to bidders may be examined without charge at the office of the Procurement and Contracts Division of the Department of Public Works or at the offices of Buck, Seifert and Jost, Consulting Engineers, 223 Manuel V. Domenech Street, Hato Rey, Puerto Rico and 112 East 19th Street, New York 3, N. Y. Copies thereof may be obtained at the office of the Procurement and Contracts Division of the Department of Public Works or at the office of Buck, Seifert and Jost, Consulting Engineers, 112 East 19th Street, New York 3, N. Y. upon a deposit of TWENTY ($20.00) DOLLARS in cash, money order or certified check payable to the Secretary of the Treasury until one (1) week prior to the opening of bids. The full amount of the deposit will be refunded to each depositor upon the return of the plans in good condition within twenty (20) days after the opening of bids.

Each proposal must be accompanied by a provisional bond in the amount set forth below in any of the forms indicated in the instructions to bidders:

Section A—EIGHT THOUSAND ($8,000.00 DOLLARS
Section B—ONE THOUSAND ($1,000.00) DOLLARS
Section C—THIRTEEN THOUSAND ($13,000.00) DOLLARS
Section D—TWO THOUSAND ($2,000.00) DOLLARS

The Board of Awards reserves the right to accept any bid or to reject any or all bids and to award any contract under the conditions found most favorable to the Commonwealth of Puerto Rico.

BUCK, SEIFERT AND JOST
Consulting Engineers

ROBERTO SANCHEZ VILELLA
Secretary of Public Works

Bids: June 7, 1956

New York State Road Work

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A. M., Eastern Daylight Saving Time, on June 7, 1956, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON OGDENSBURG ARTERIAL, ALTERNATE ROUTE 37, TOWNSHIPS OF OSWEGATCHIE AND LISBON CITY OF OGDENSBURG, ST. LAWRENCE COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEC. SM-88

Maps, plans and specifications may be examined and obtained at the following offices.

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York.

(b) Mr. W. C. Bassette, Acting Dist. Engr., 444 Van Duzee Street, Watertown, New York.

(c) Mr. William M. Trainer, Associate Contract Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $20,800.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $1040. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders."

The right is reserved to reject any or all bids.

J. W. JOHNSON
SUPERINTENDENT OF PUBLIC WORKS

Bids: June 7, 1956

Channel Improvements

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Public Buildings Law, sealed proposals will be received until 10:30 A.M., Daylight Saving Time, on June 7, 1956 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, the Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

Contract F.C. 56-1 for
Channel Improvement,
Newton Creek, Bainbridge,
Chenango County, New York

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor,
The Gov. Alfred E. Smith State Office Bldg., Albany, New York

(b) Mr. Joseph C. Federick, District Engineer,
71 Frederick Street, Binghamton, New York.

(c) Department of Public Works, 270 Broadway, New York City, N. Y.

The deposit for Plans and Proposal Forms is $15.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund of all other sets in good condition, similar period, will be 50% of deposit.

Engineer's Estimate of Cost for this contract is $247,500.00.

Each proposal must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of five percentum, (5%) of the bid. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law and Public Buildings Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

J. W. JOHNSON
SUPERINTENDENT OF
PUBLIC WORKS

U. S. Government

Department of Commerce, Bureau of Public Roads, May 16, 1956. SEALED BIDS will be received at the office of the Bureau of Public Roads, First National Bank Building, Florence, Alabama, until 10:00 a.m., C.S.T., JUNE 15,1956, for the construction of Project 3E1, Part A, Natchez Trace Parkway, Lee, Pontotoc and Chickasaw Counties, Mississippi. 5.785 miles Grading, Draining, Structures, Gravel Base Course and other work from Pontocola to 1.3 miles south of Mississippi Highway No. 41. The approximate quantities of the more important items are as follows: 446,500 cu. yd. Excavation and Borrow, 29,000 cu. yd. Gravel, 2,395 cu. yd. Concrete, 331,000 lb. Reinforcing Steel, and 3,400 units of Seeding. Minimum wage rates have been fixed as required by law. Plans, specifications and proposal forms are available upon request at the address given above, or Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia. H. J. Spelman, Division Engineer.

OFFICIAL PROPOSALS

Bids: June 15, 1956

Notice of Letting of Drain Contract

FOR THE LOCATING, ESTABLISHING AND CONSTRUCTING OF THE LEFLER READY SANITARY DRAIN IN THE TOWNSHIP OF DEARBORN, WAYNE COUNTY, MICHIGAN.

NOTICE IS HEREBY GIVEN, That I, CHRISTOPHER J. MULLE', County Drain Commissioner for the County of Wayne, State of Michigan, will now and until 11 o'clock in the forenoon of the 15th day of June, A. D. 1956, in the office of the Wayne County Drain Commissioner, 3523 Cadillac Tower, Detroit 26, Michigan, proceed to receive sealed bids for the construction of a certain drain known and designated as the "LEFLER READY SANITARY DRAIN", to be located and established in the Township of Dearborn, in said County, at which time bids will be publicly opened and read by Christopher J. Mulle', the Wayne County Drain Commissioner.

Said drain is divided into FIVE (5) SECTIONS. Contract will be awarded for all work listed in Sections 1 through 5, which includes the project in its entirety. Stations are 100 feet apart.

SECTION NO. 1—TRUNK DRAIN

Beginning at station number 0 + 00 at the lower end of said drain and extending to station number 147 + 49, a distance of 14,749 feet, and having an average depth of 23.4 feet.

SECTION NO. 2—ARM NO. 1

Beginning at station number 0 + 00 at the lower end of said drain and extending to station number 2 + 19, a distance of 219 feet, and having an average depth of 13.8 feet.

SECTION NO. 3—ARM NO. 2

Beginning at station number 0 + 00 at the lower end of said drain and extending to station number 0 + 11, a distance of 11 feet, and having an average depth of 14.0 feet.

SECTION NO. 4—ARM NO. 3

Beginning at station number 0 + 00 at the lower end of said drain and extending to station number 41 + 83, a distance of 4,183 feet, and having an average depth of 20.3 feet.

SECTION NO. 5—ARM NO. 4

Beginning at station number 0 + 00 at the lower end of said drain and extending to station number 0 + 30, a distance of 30 feet, and having an average depth of 8.8 feet.

In the construction of said drain the following quantities and character of tile or pipe will be required and contracts let for same:

2,595 feet of 30 Inch R.C.P. (C-76-2) Concrete Encasement
4,594 feet of 24 Inch R.C.P. (C-76-2) Concrete Encasement
2,310 feet of 21 Inch R.C.P. (C-76-1) Concrete Encasement
1,297 feet of 21 Inch R.C.P. (C-76-1) Concrete Cradle
1,259 feet of 18 Inch R.C.P. (C-76-1) Concrete Cradle
2,694 feet of 15 Inch R.C.P. (C-76-1) Concrete Cradle
1,728 feet of 15 Inch R.C.P. (C-76-2) Concrete Cradle
645 feet of 12 Inch R.C.P. (C-76-1) Concrete Cradle
1,810 feet of 12 Inch Pipe (C-200) Concrete Cradle
57 feet of 8 Inch C.I. Pipe Class 150
11 feet of 8 Inch Pipe (C-200) Concrete Encasement
100 feet of 8 Inch Pipe (C-200) Concrete Cradle
92 feet of 8 Inch Pipe (C-200)
12 Each Manholes Under 18 ft. Deep
24 Each Manholes Between 18 and 24 ft. Deep
25 Each Manholes Over 24 ft. Deep
1 Each Manholes Between 18 and 24 ft. Deep with 2 Drop Connections
4 Each Manholes Over 24 ft. Deep with 2 Drop Connections
1 Each Diversion Manhole Under 18 ft. Deep
3 Each Diversion Dams in Existing Manholes

Said job will be let in accordance with the diagram now on file with the other papers pertaining to said Drain in the Office of the County Drain Commissioner for the County of Wayne, to which reference may be had by all parties interested, and bids will be made and received accordingly. Contract will be made with the lowest responsible bidder giving adequate security for the performance of the work, reserving to myself the right to reject any and all bids or proposals and/or to adjourn such letting to such time and place as I shall publicly announce.

The Drain Commissioner shall have the right to hold all bids for a period of sixty days after the opening thereof. No bidder shall have the right to withdraw his bid during such time.

The Drain Commissioner shall, within the period of sixty days herein provided for the holding of bids, obtain the approval of the Wayne County Board of Auditors to the letting of the contract to the lowest responsible bidder, and shall notify such bidder of his award of the contract. The Drain Commissioner shall be given ninety days from the date of notification to the contractor of the acceptance of his bid to sell bonds in an amount sufficient to pay for this proect, it being understood that if the Drain Commissioner shall not have marketed bonds in an amount sufficient to pay for this project within such ninety day period, no contract shall be executed. If within such ninety day period the Drain Commissioner shall successfully sell bonds in an amount sufficient to pay for the project, the Drain Commissioner shall forthwith notify the successful bidder of such sale and an agreement awarding the contract to the successful bidder shall be executed within ten days from the date of notice of the sale of bonds. The bid, of the successful bidder, and the bond securing the same, shall remain in full force and effect until the contract is executed. If the bonds hereinbefore required to be sold are not marketed within the period provided above, or notice of such sale is not given by the Drain Commissioner to the successful bidder within the specified time, the bid shall be deemed to be null and void and the bid deposit shall be returned to the successful bidder.

The ninety day period provided above for the sale of bonds and the giving of notice thereof may be extended from time to time by mutual agreement between the successful bidder and the Drain Commissioner.

The successful bidder shall not be required to execute performance bond, material lien bond, or provide the insurance herein otherwise required until he shall first have been notified of the sale of the bonds by th Drain Commissioner, and upon receipt of such notice, the successful bidder shall be required to execute and deposit such bonds and insurance as are required by the terms of the contract the time of the execution thereof.

Copies of the plans and specifications may be secured from the Office of the Drain Commissioner of the County of Wayne, Michigan at 3523 Cadillac Tower, Detroit 26, Michigan.

Any person desiring to bid on the above mentioned work will be required to deposit with the County Drain Commissioner a certified check, bank draft, cashier's check or bond payable to the Drain Commissioner of the County of Wayne, Michigan, in an amount equal to five per cent (5%) of the bid as a guarantee that he will enter into contract and furnish the required bond at the time and in the manner hereinbefore provided.

A deposit of Fifteen Dollars ($15.00) will be required for each set of plans and specifications, which said deposit will be refunded upon the return of said plans and specifications in good condition within 15 days after the award of the contract. The payments for the above-mentioned work will be made as follows: IN CASH, FROM THE RECEIPTS OF THE SALE OF BONDS. Contractor may draw up to 80% of work completed from time to time and upon approval of the engineer.

Taxes will be spread in thirty (30) installments. First installment due and payable the 1st Day of December, 1956.

Dated this 19th Day of May, A.D. 1956.

CHRISTOPHER J. MULLE'
Wayne County Drain Commissioner.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4705) will be received at Medford, Oregon, until July 10, 1956, for furnishing labor and materials for Earthwork, Pipe Line, and Structures, Bear Creek Siphon, Medford Canal Rehabilitation, Medford Irrigation District, Rogue River Basin Project, Oregon. Location near Phoenix, Oregon. Principal items are 4,110 cu. yds. excavation; 1,856 lin. ft. 48-inch concrete pipe siphon; 600 lin. ft. 12-inch concrete pipe drain; 1,680 pounds metalwork; and other work. Completion time 210 days. For particulars, address Bureau of Reclamation, P. O. Box 629, Medford, Oregon; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

U. S. Government

United States Department of Commerce, Bureau of Public Roads, May 7, 1956. SEALED BIDS will be received at the office of the Inter-American Highway Office, Bureau of Public Roads, Room 4009, General Services Building, Washington 25, D. C., until 2 p.m., e.d.t., June 21, 1956 for construction of Nicaragua Project 5-A, consisting of 16 bridges between Rivas and Peñas Blancas on the Inter-American Highway in Nicaragua. Bidders will be limited to United States or Nicaragua firms with a satisfactory record of performance on construction in the United States of America or in the Republic of Nicaragua. The approximate quantities of the major items of work are: Unclassified Structural, Excavation 6200 cu. yds., Class "A" Concrete 3120 cu. yds., Reinforcing Steel 451,000 lbs., Structural Steel 596,000 lbs. All material, equipment, and supplies used in the construction of this project must be products of the United States or of the Republic of Nicaragua, unless otherwise authorized. Bureau of Public Roads Specifications FP-41 will apply. Plans, Specifications and Proposal Forms are available upon request at the address given above, or at the Inter-American Highway District Office, Bureau of Public Roads, 516 Avenida Roosevelt, Managua, Nicaragua. C. D. Curtiss, Commissioner.

INVITATION FOR BIDS

Item #1—Sale of one Ellicott Portable Hydraulic Dredge with 12" suction and 10" discharge. Complete with 800 ft. of floating discharge line, pontoons, 2000 ft. of shore line, and other accessories, and appurtenances necessary to make a complete and efficient dredging plant.

Item #2—Sale of one diesel powered dredge tender with steel hull, and mounted "A" frame.

Both units are in excellent condition and may be seen at the Jefferson County Drainage District #7 Pump Station, located near the intersection of Highway #69 and the Port Arthur Seawall.

Plans, specifications and performance data may be seen at the office of Jefferson County Drainage District #7, 317 Adams Building, Port Arthur, Texas. Inventory of equipment, spare parts, etc., will be supplied to prospective bidders on request.

All bids must be accompanied by a bid bond consisting of a certified or cashiers check made payable to Jefferson County Drainage District #7, Port Arthur, Texas, in the amount of not less than five per cent (5%) of the total bid. Bids must be submitted in triplicate, and addressed to Jefferson County Drainage District #7, P. O. Box 488 Port Arthur, Texas. Bid bonds will be returned to the unsuccessful bidders.

Bids may be submitted on items #1 and #2 either as a unit, or separately.

The Drainage District reserves the right to reject any or all bids, or to waive any informality as its interests may require.

The equipment is to be sold afloat at its present location. Dismantling and shipping costs shall be born by the purchaser.

Bids will be opened at the Drainage Districts office, 317 Adams Building, Port Arthur, Texas, on **June 11**, 1956 at 5:30 P. M.

JEFFERSON COUNTY DRAINAGE DISTRICT NO. 7
M. A. Furth
M. A. Furth, Chairman

Bids: June 15, 1956

ELEVATED STORAGE TANK

Sealed proposals will be received for steel elevated water storage tank. 150,000 gallons, 150 feet. Write for documents. Opening: 2 p.m. Est., City Hall.

CITY OF FREDERICKSBURG, VIRGINIA
F. Freeman Funk
City Manager

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The Advertisements in this section include all employment opportunities—executive, management, technical, selling, office, skilled, manual, etc.

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The advertising rate is $28.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

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Graduate Mechanical Engineer with minimum 3 years' experience in work involving thorough knowledge of the materials and equipment used for oil producing, refining and supporting facilities. Knowledge A.P.I. and A.S.M.E. and other production codes required. For New York office, however, job requires extensive travel throughout the U. S. to inspect and approve purchased equipment and materials.

Salary commensurate with education and work experience. Liberal benefit program. Write outlining personal history and work experience.

Recruiting Supervisor, Box 114

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Two graduate, licensed Civil Engineers with at least 10 years experience in design and preparation of plans and specifications for Sanitary Public Works Engineering projects, including water and sewage treatment plants and distribution systems.

Two engineering draftsmen experienced in preparation of plans for Sanitary Engineering projects.

P-1842, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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Oil refinery or chemical plant experience necessary

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REPLIES (Box No.): Address to office nearest you
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SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Mechanical and Piping Erection Superintendent for sewage treatment and filtration plant construction. Midwestern contracting firm specializing in this work has permanent position open. Please give experience and full details in reply. Replies will be held confidential if requested. P-1719, Engineering News-Record.

Engineers experienced in design and supervision of construction to work as resident engineers or prepare plans for water and sewer systems; also, architects for preparation of plans for general building work. State experience, age, salary required, when can report, and give references. Reply P-1800, Engineering News-Record.

Project Engineer with estimating ability and management potential for main office of Midwestern General Contractor, permanent position with growing organization. State experience, age, salary, when can report and references. P-1668, Engineering News-Record.

Building Construction Superintendent for Mid-west General Contractor in heavy industrial and institutional construction; growing organization. State experience, age, salary, when can report and references. P-1671, Engineering News-Record.

Sales Engineers to introduce outstanding prod-uct in sanitary and drainage fields. Young, aggressive, well-financed company. Salary open. Location: Gulf Coast. P-1689, Engineering News-Record.

Graduate Engineer to become City Engineer in a community of 22,000 population, which is a suburb of the City of Detroit. Engineer will be in charge of the Department and have control of all public works within the city. Need not be registered. Salary open, but in neighborhood $6,500.00 and $7,000.00. Applications to the City Manager, City Hall, 3322 Coolidge Highway, Berkley, Michigan.

Engineers one or two years experience in structural design or recent graduates. Consulting engineers office Newark, N. J. Give education, experience and salary. P-8890, Engineering News-Record.

Wanted—Salesman, heavy construction equipment. Los Angeles distributor leading exclusive lines—protected geographical area—salary, commission, car and expenses. Reply P-1732, Engineering News-Record, 68 Post St., Los Angeles, Calif.

STRUCTURAL DRAFTSMEN

A national major steel fabricating firm rapidly expanding its West Coast division offers attractive, permanent positions to experienced structural detailers and checkers.

LIBERAL EMPLOYEE BENEFITS

Please write giving all pertinent information regarding age, qualifications, references and salary requirements, to:

Mr. C. C. Buckley
PITTSBURGH-DES MOINES STEEL CO.
P. O. Box 1112 **Fresno, California**

POSITIONS VACANT

Architectural or engr. draftsman, experi-enced. Monroe, Licht & Higgins, Arch.-Engr., 827 E. Yandell Blvd., El Paso, Texas.

Designers & Draftsmen—Structural, electri-cal, piping air cond., & arch. industrial buildings and power plants. Marbarry, 120 Greenwich St., N.Y.C. RE-2-3749.

Soil & Asphalt Field & lab. technicians o'sea base. Mild climate. Fatchen & Zimmerman, 120 Greenwich St., N.Y.C. RE-2-4187.

Line and Grade Chief—First Class Man of ex-perience who can read plans thoroughly—2 yr job Jersey Area. Good pay for right man. Roscoe Eng. Corp., 1107-19th St. N.W. Wash. 6, D. C.

Structural Engineer experienced in layout and design of highway structures. Also civil and municipal engineers with 2 to 6 years experience. Permanent positions offered by long established consultant in progressive midwestern university town. Good living conditions and housing available. Hospitalization and medical insurance plan. Salary open. P-1776, Engineering News-Record.

Estimator on earth and concrete dams, fur permanent position with old established San Francisco construction firm. Send resume in confidence. Our staff knows of this advertisement. Write P-1780, Engineering News-Record.

Experienced in design and development of construction equipment. Must have administrative and executive ability. One step from General Manager for capable man by young ambitious and successful Cincinnati Manufacturer. Salary open. Unusually rare opportunity for the right man. Complete resume with first letter. Buck Equipment Corporation 720 Anderson Ferry Road, Cincinnati 38, Ohio.

Chief estimator with well established Central Pennsylvania General Contractor. Send full information on experience, education, date available and salary requirements. We are mainly interested in industrial, commercial and institutional work. P-1816, Engineering News-Record.

Wanted: Experienced party chief for estab-lished engineering firm located along the East Coast of Florida. Must be able to take charge of all types of field work. Age 26-45. Permanent position. P-1782, Engineering News-Record.

Instructor—To teach undergraduate courses in applied mechanics. Opportunity to work on graduate degree in any engineering department. Salary depends on qualifications of applicant. Department of Applied Mechanics, University of Kansas, Lawrence, Kansas.

(Continued on page 97)

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Immediate permanent positions are available in our Cleveland, Ohio office for applicants who have an engineering degree or equivalent in design and/or field experience. In addition must have take-off and pricing experience on all types of industrial and commercial buildings, and/or electrical installations.

These positions offer an opportunity to become associated with one of the country's foremost industrial engineering and construction companies. In addition to a good starting salary we offer excellent working conditions with paid vacations, sick leave accrual plan, company-sponsored insurance plan and overtime based on current 48 hour work week.

All replies will be treated confidential and arrangements will be made to interview selected applicants. Please submit complete reume stating experience, education, salary required and date available to:

P-1877, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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You can fill a desirable *permanent* position in McKee's enlarged Refinery, Metals or Industrial Divisions. Our expansion program gives you excellent opportunity for advancement in one of the world's largest engineering firms.

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Confidential interview can also be obtained at: Scanlon Building, Houston, Texas, or Roosevelt Building, Los Angeles, Calif.

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College graduates with minimum 6 years' work experience in industrial engineering, cost analysis or related activities. To provide industrial engineering services ranging in scope from shop layout to organizational changes in major oil producing operations.

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P-1871, Eng. News-Record, [illegible] N. Y.

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Requirements: 15-20 years experience. Ability to organize and direct a country wide materials survey and train personnel in testing operations.

Top salary—good living conditions—liberal benefits including paid transportation for wife.

P-1812, Engineering News-Record
330 West 42 St., New York 36, N. Y.

CIVIL ENGINEER

Opportunity for a civil engineer with building construction experience for position as Chief Engineer on one to three million dollar projects. Location Northeastern United States. Kindly give full resume; strictly confidential.

P-1540, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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FOREIGN EMPLOYMENT

Graduate Electrical, Mechanical, Civil or Chemical Engineers with minimum 10 years' experience supervising construction of industrial buildings, oil processing and oil handling facilities. Engineering degree essential. To assist in constructing expanding company facilities of major foreign operating oil company located in Saudi Arabia. Generous salary plus living allowance: liberal all-inclusive benefit program.

Write giving full particulars regarding personal history and work experience.

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Send Resume Including Education, Experience, Salary Requirements and Availability TO:

Richard L. Shaw, Personnel Director

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Baker Building Rochester, Penna.

HIGHWAY ENGINEERS for work in New Jersey and New York

Designers, draftsmen, chiefs of party, specification writers — submit complete resume stating education, experience, salary desired and date of availability to

P-1603 Engineering News-Record
330 W. 42 St. New York 36, N. Y.

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A major steel company has need for sales engineers to promote and sell fabricated products in middle Atlantic states. Excellent opportunities for men 25 to 30 years old with engineering background and a desire for sales work. Attractive starting salary with company car, expenses and bonus plan.

P-8324, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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Long established firm of consulting engineers with world-wide practice needs both beginners and experienced civil, electrical, mechanical, and foundation engineers for interesting work on large dams, powerplants, river control works and highways. Permanent positions. Liberal employe benefits. Starting salaries dependent on qualifications. Please send complete resume to Hugo Niemi, Personnel Manager.

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Immediate openings for

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. . . BUILDING INSPECTORS
. . . PAVING INSPECTORS
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Rush complete resume to
OVERSEAS PROJECT

P-1712, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

BRIDGE and HIGHWAY ENGINEERS

For responsible positions in Rochester, N. Y., Syracuse, N. Y., and in Columbus, Ohio. *Write in confidence to*

ERDMAN, ANTHONY & HOSLEY
600 Foote Bldg. Syracuse 2, N. Y.

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Responsible engineering position with stable growing manufacturer for man with 8 to 10 years design experience on truck and crawler cranes.

This is a permanent position with an excellent future in the St. Paul-Minneapolis Area. Suitable arrangements relative to cost incident to moving can be made.

Write or call N. P. Goodrich, Labor Relations Supvr. for interview. State education and experience.

AMERICAN HOIST & DERRICK CO.
63 S. Robert St., St. Paul, Minn. Capitol 2-0541

POSITIONS VACANT

(Continued from page 94))

Materials Engineers in several grades wanted by Mid-West consultants. Must know construction materials testing and inspection, including field control soils, and concrete. Furnish resume, salary requirements, availability, first letter. P-1840, Engineering News-Record.

Assistant City Engineer: City of Owosso, Mich. Must be a graduate civil engineer or man with experience in surveying and drafting, with some design knowledge for general municipal engineering. Submit complete resume with salary requirements and earliest date available in first letter to City Engineer, Owosso, Michigan.

Engineers and Draftsmen experience in Municipal work desirable. Permanent positions under Civil Service. Paul J. Jorgensen, City Engineer St. Petersburg, Florida.

Assistant City Engineer: City of Austin Minnesota. Must be a graduate civil engineer, some experience in municipal engineering desirable. Submit complete resume with salary requirements and earliest date available in first letter to City Engineer, Austin, Minnesota.

Superintendents, mechanical engineers and estimators needed by rapidly expanding mechanical contractor, specializing in industrial construction. Excellent opportunity for advancement in all fields. Submit resume of experience and availability with initial reply. P-1880, Engineering News-Record.

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Editorials

Reminder on Roads

A GREAT DEAL OF PRAISE is due both houses of Congress and their various committees for the businesslike—and statesmanlike—manner in which they have pursued legislation for an adequate highway program. The House developed and passed a good bill. The Senate is well on the way to developing an equally good bill. There are points of difference between the two measures, yet none but what is readily possible of compromise by men of good will convinced that agreement must be reached in the public interest.

There is mounting evidence that most members of Congress hold this conviction. It would not be amiss, however, for everyone who shares the belief that the nation's future growth, prosperity and security depend on an adequate highway system—whose development must be assured by this Congress—to write his representatives in Congress a letter of encouragement. Congress will be subjected to so many pressures favoring or opposing individual details of the bills that a reminder that the public will back almost any measure that will assure it the roads it needs would be welcome.

Failure to pass a long-term road bill at this session will merely prolong the agony of developing one next year, and in the meantime the debilitating effect of inadequate roads will continue. Definitely, this is a prospect to be avoided in the public interest.

Industry Bets on the Future

ADEQUATE HIGHWAYS, as discussed above, are, without question, one of the basic things that American industry counts on when it charts its future investments in new plant and equipment. Without roads—or water or electric power or the many other items that the construction industry supplies to furnish a basis for national growth—betting on the future with new factories would be precarious in the extreme.

The news is that industry is willing and anxious to take a chance, firm in the belief that these necessary facilities will be provided—must be provided if our dynamic economy is to continue. According to the annual McGraw-Hill Survey of Capital Spending Plans by American Business, investment in new plant and equipment next year is planned to be 30% higher than it was this year. Moreover, planning for each of the three years beyond this one is on a comparable plane.

All of this forward planning is being done despite a current building rate that shatters all precedents in the industrial field and that is of boom proportions in the commercial field. Thus, industrial building contracts reported by Engineering News-Record are 135% ahead of last year while commercial building contracts are up 19%.

There can be no doubt that American industry believes in America's future. This is an exciting fact for every American to savor—and a positive reason to pledge the same kind of planning to every other facility necessary to make this future come true.

Price and Value of Water

BARGAIN RATES FOR WATER are too generally considered an American birthright. This is unfortunate because they are one of the principal reasons why Americans periodically suffer from water shortages since the resulting revenues are insufficient to support the development of adequate supplies.

This chronic ill of waterworks administration was aired again at the recent diamond jubilee meeting of the American Water Works Association by John H. Murdock of the American Water Works Service Co. His plea that something must be done about it recalls Farley Gannett's challenging article, "Let's Sell Water" (ENR Nov. 24, 1949). Charging waterworks men with a lack of progressiveness, Mr. Gannett said among other things, "A waterworks need not be a penny-pinching, almost grudging operation to supply a necessary service with the least possible cost and investment. . . . The chief lack is salesmanship."

The American Water Works Association has been doing what it could to supply some of this salesmanship, but AWWA members are basically production men, not marketing men. Even so, there have been exemplary instances of success at selling the importance of water projects locally by individual water agencies—witness Baltimore and Denver. Yet such efforts are too few and far between, and they are not exactly pinpointed on the real problem—to educate a whole nation as to the value of good and sufficient water in terms of higher rates.

Now, however, help may be on the way. The Water & Sewage Works Manufacturers Association has put its talents and resources to the task, and has engaged public relations counsel for expert assistance. The problem of selling water—and at a price more in line with its worth—is now to have the attention of marketing experts, to complement the efforts of the industry's production men. A luncheon speech by Albin Dearing, whose public relations firm has been engaged by WSWMA, was in effect a keynote address for a campaign planned to cure the curse of too-cheap water.

Waterworks men should welcome this new aid in their battle to convince John Q. Public that water is worth more than it brings, and should intensify their own efforts in the same direction. For this national public relations program, envisioned by WSWMA, must eventually be carried to a successful conclusion at the local level—and by local water men.

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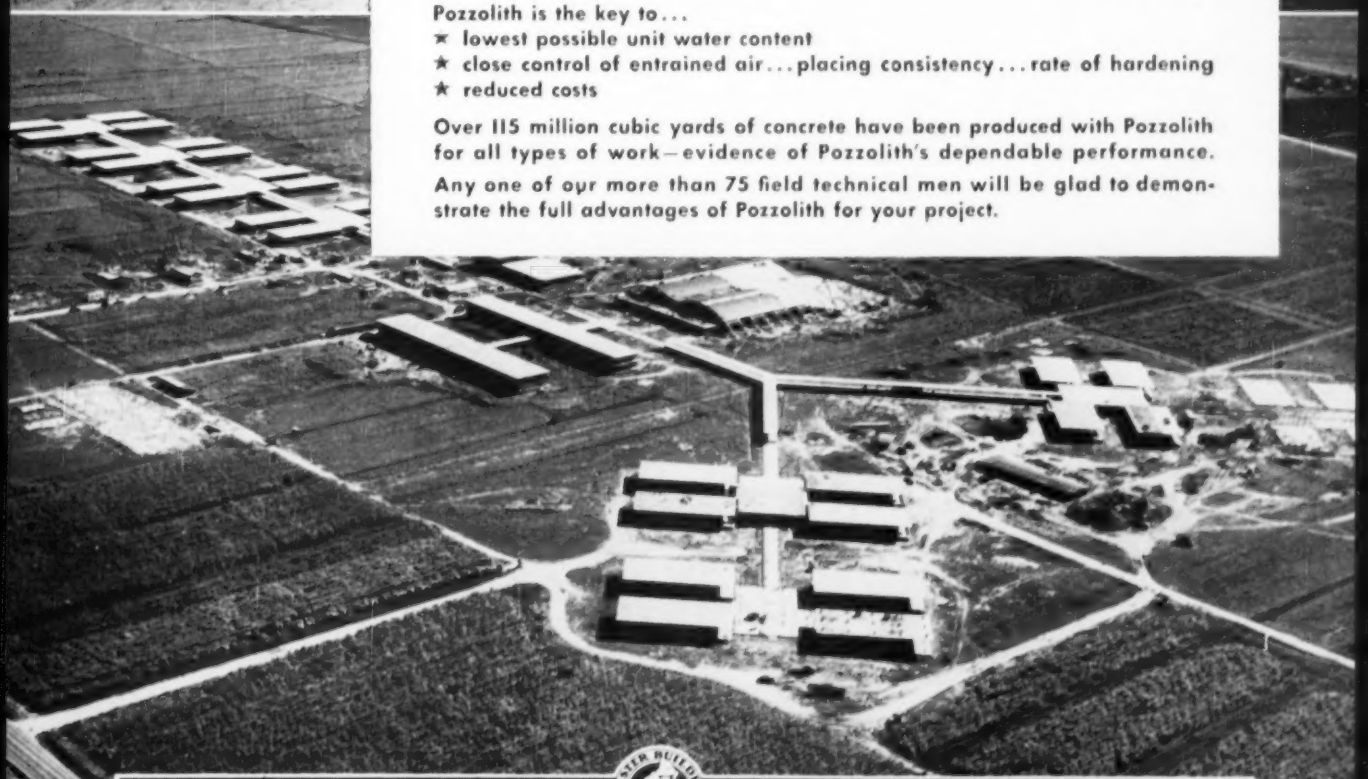

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